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Vol. XII OCTOBER, 1917 No. 10

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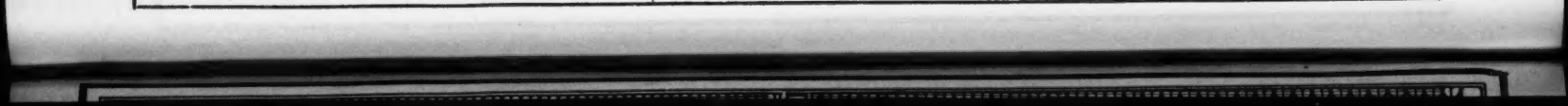

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VOL. XII OCTOBER, 1917 No. 10

What of the Future?

By W. H. Dalrymple, M. R. C. V. S., Louisiana State University

The following article has been written especially for this number of the Journal. It is at once anticipatory and enlightening. It contains a lesson for him who would profit by the advice of one whose services have been of inestimable value to the live stock industry of the South and, likewise, a prominent factor in the progress of the veterinary profession of America.—Eds.

THE international conflict in which this country is now an active participant has created an urgent demand upon us for greater food production for both man and beast in order that not only we, but those countries allied with us, may not suffer from an insufficiency in our joint effort to bring about a lasting peace; and in the mighty effort we believe that the veterinary profession will have a most important and vital part to play; and we further believe that it will be fully equal to the occasion, if it only asserts itself, and takes advantage of the opportunities which the occasion affords, or will afford.

Many of our members will be called to active service at the front, but there will be those left at home to do their bit, in a professional way, in aiding in the conservation of animal health and life, which is of the utmost importance.

The veterinary profession is, in reality, the rightful conserver, not only of the meat animals of the country, but of the work stock as well, that are so necessary in the production of both our food and feed crops.

To be of the greatest service in this, our present-day graduate should be equipped to play a double rôle, so to speak. From his knowledge of animal dietetics, he ought to be a factor of immense value to the live stock industry by contributing his share toward an increased meat production, which necessarily means increased soil fertility and crop production, as they are so closely linked together. And not only so, but a rational system of dietary means the saving, or conservation, of feed, as well as a reduction in the number of fatalities which result from dietetic errors, etc. And this class of service which the veterinarian is competent to render, he should take pains to impress upon the public.

The achievements of the profession in the matter of the sanitary control of our expensive animal plagues, such, for example, as the eradication from the country, recently, of foot and mouth disease, are well known to us, but they ought to be more widely known to the public at large, although the great accomplishment just referred to, must, of necessity, have left its favorable impress upon the minds of a great many people. However, we believe the campaign of education rests largely with our-

selves, in proving our ability to serve. The campaign has, doubtless, made a beginning, and results are already making themselves manifest. We find, in some sections at least, that the public are commencing to fully realize the futility of depending upon lay advice in the prevention and treatment of their stock ailments, and that success must depend upon the intelligent effort of the thoroughly qualified professional man. Still, there are too many lay, and other unqualified individuals throughout the country who are "accepting money under false pretenses," and filling the places of men who could render real service to their communities. However, with the nation at war, and the conservation and increased production of food so urgent, unnecessary waste, through unnecessary loss of animal life, is bound to attract public attention and call for correction being made by placing the veterinarian in full charge as the real guardian of the meat supply, as well as other animal life on our farms.

As a section of the country that will offer the greatest opportunities for the profession in the future, we believe the South stands in the first place, as it is sure to become the great meat-producing area when once the cattle tick has been finally eradicated, and which, even now, is within sight of accomplishment. And incidentally it should be mentioned that this work, and the splendid results already obtained, has been under the supervision of the veterinary profession—a fact which the majority of Southern stockowners are already aware of.

It may be said, therefore, that members of the profession engaged in this work in the South are making possible a great future, by blazing the way, for those who will, later, avail themselves of the opportunities and possibilities in that section of our country.

War hasn't changed from what the famous Sherman said it was; but we believe the present conflict, with its urgent call for the exertion of every energy to maintain, conserve and increase both food and feed supplies, affords an opportunity, as never before, for the veterinarian to assert himself, and for the public to realize and recognize his true worth in the successful conservation and increased production of that important necessity—our meat-producing animals.

But further, while the present war has acted as a stimulus to greater activity in production at the present time, improvement in the conditions so brought about is not likely to end when peace is declared. Those who have experienced the progress that is possible under more or less forced conditions, are not likely to lapse into the old non-progressive practices so prevalent in the past. In other words, the war will have taught a lesson in methods of production which will not readily, if ever, be forgotten. Hence improvement begun now will be continued, and with a more hopeful and prosperous future for those of the profession who are to serve the public later.

The present hostilities have demanded greater activity in the work of tick eradication in the South, for example. What will this mean after the war? Will it mean going back to the old regime of scrub cattle and tick-infestation? No. It will mean the abandonment of the irrational system of single-cropping and the keeping of scrub stock, and, instead, the adoption of a more rational system of diversified agriculture, including improved livestock of all kinds, which in turn will mean soil building, and increased production of staple and other crops; and the veterinarian ought to be in a position, through greater familiarity with those subjects which are so closely allied to his professional work, to advise and assist in the advancement of this, to the South especially, newer agriculture.

The present war clouds are bound to pass away ere long, leaving a future which we believe will be brighter than ever before, along all lines of endeavor, in which a more progressive agriculture will play a large part, and in which a well equipped veterinary service is sure to participate in the general progress and prosperity.

To meet this demand for greater advancement, the veterinarian will, perforce, be called upon to assume a rôle of broader vision, and must equip himself accordingly.

(*Continued on page* 710)

Live Stock Sanitation, Past, Present and Future*

By JOHN G. RUTHERFORD, V. S., C. M. G., Hon. Assoc. R. C. V. S., Director, Agricultural and Animal Industry Branch, Canadian Pacific Railway Co., Calgary, Alberta, Canada.

Dr. Rutherford has an international reputation as a livestock sanitarian of the highest order; he has had legislative and executive experience of an unusual richness; he possesses an uncommon degree of tact, ability and resourcefulness. This message from him will profit every veterinarian who reads it and re-reads it. It is historical, illuminating, practical, epochal and prophetic.—Eds.

WE need hardly spend any time going into the past of live stock sanitation, because in a sense it has no past. We can go back to the days of Moses. I noticed that in every room in this hotel there is a copy of the Holy Bible and if you will study the books of Exodus and Leviticus, you will be surprised how much that old Hebrew knew about sanitation, livestock and otherwise. Perhaps his knowledge was not based on microscopic research, but he had the best kind of good hard common sense, and the principles which he laid down in those early ages are being, to a very considerable extent, followed today, although with more knowledge of the reasons why.

We come on down through the ages —I will hurry over those ages, because from the point of livestock sanitation they are unimportant, and we find that there was always more or less attempt being made to enforce sanitation, although people did not know very much about it; until we reach what may be termed the dawn of our own civilization.

The eighteenth century is about the beginning of anything in the nature of scientific veterinary not to say medical work. I have made a collection of the old books, published, a few of them at the close of the seventeenth century, but a majority of them in the eighteenth century. A perusal of those portions which deal with infections and contagious diseases of animals, and the methods taken for their control, will show at once that the knowledge possessed by our predecessors of the eighteenth century was exceedingly limited. As a matter of fact, they contradict each other in a most astounding way, and we find that up to nearly the end of the nineteenth century, people had most remarkable ideas in regard to the nature of contagious diseases, and the manner of preventing their spread, not only among animals, but among human beings as well. In the past, at any rate the somewhat remote past of livestock sanitation, there is nothing much with which I could profitably occupy your time.

Among the principal antiseptics recommended by the veterinarians of the eighteenth century and the first half of the nineteenth century, were asafetida, saffron, anise seed, and our old friend the goat. The goat, that is, the he-goat of some age, and bouquet, was looked upon as being perhaps the most effective disinfectant which it was possible to keep around for the purpose of warding off attacks of contagious diseases. He has since been largely utilized for another purpose, but at that time his principal role was that of head center and cornerstone of livestock sanitation.

We find even in the later years of the seventeenth century quite a good many references to corrosive sublimate, although the strength in which it was used would make most of us sit up and take notice at the present time. Then lime began to be used very largely but there was little or nothing in the way of scientific disinfection until after the dis-

*Presented at the U. S. Live Stock Sanitary Association meeting, Chicago, Dec. 5, 6 and 7, 1916. Published in the 20th annual report of the U. S. L. S. S. A.

covery of carbolic acid and the other coal tar products.

Some of the younger men here may not have realized that when I left college in 1879 the spontaneous origin of contagious diseases was still being taught and was a prominent feature in all of our text books. I remember well when the late Sir George Fleming, then principal veterinary surgeon in the British army, was fighting a lone fight, single-handed, amongst English speaking veterinarians for the promulgation of the theory that contagious diseases were always of specific origin.

I hold in my hand a little book, to which I will refer later, one of the most remarkable works of our profession of modern times. It is a little monograph on glanders, published in the month of November 1887 by the late William Hunting, who was one of the greatest authorities on that disease, and in it he quotes as follows:

"Of all the contagious maladies affecting man or the domesticated animals, perhaps glanders is the disease which would be selected as an example of the spontaneous or direct development of a virulent or infecting element. Those who maintain that a contagious malady can never be generated, but that its appearance must depend on the presence of a previously existing germ, have had but little or no experience among horses, or with this disease. The highest continental veterinary authorities, and those who have most attentively studied the etiology of the affection, are absolutely unanimous in their opinion as to its being at times developed directly, and without contagion having anything to do with it. The innumerable facts derived from many years' observation afford perfectly conclusive evidence that, under the influence of certain causes of an appreciable character, glanders will develop itself without the intervention of a contagium. So says Dr. George Fleming in a book published only ten years since."

Now, that book was published by George Fleming, who was in 1877, one of the leading authorities, especially in the English speaking world, on veterinary subjects. It was only in 1879 or 1880 that Fleming became a convert and from preaching such doctrine as that, which I have just read to you, took the other end of the argument and fought the whole veterinary profession on the question of the spontaneous origination of contagious diseases.

It is hard for men to believe that such professional ignorance existed so short a time ago. You know that Professor Williams of Edinburgh, as late as 1890, in this wonderful text book, which was the veterinarian's bible for a good many years, still declared himself unquestionably of the opinion that glanders frequently originated spontaneously.

I remember when I was a boy the big outbreak of rinderpest in Great Britain in the early 60's, and I remember the crude and futile methods which were adopted for the suppression of that disease. Looking back at the efforts which were made then in the suppression of cattle plague, I long ago reached the conclusion that Providence in past centuries had played a very important part in the restraint of contagious diseases of all kinds.

Many of the older men here will remember when pleuropneumonia was a very live subject with all veterinarians, not only in the old country but on this continent, how little was known about it and how many different theories were promulgated.

If any of you want to realize fully how great and rapid has been the progress in livestock sanitation, I would advise you to get hold of a book "The Four Bovine Scourges," which was published in 1879 by the late Professor Walley, who succeeded Professor Dick as Principal of the Royal Veterinary College in Edinburgh. It deals with four diseases, rinderpest, pleuropneumonia, foot-and-mouth disease and tuberculosis. This book was justly regarded as the very last word on veterinary sanitation, at least with reference to these four maladies, but read in the light of present day knowledge it is rather astounding. Its most interesting feature is perhaps the satisfaction evinced by the author at having reached the last possible conclusion as to the nature of these various maladies and the best methods of controlling them.

Right here I may say that this same

satisfaction is evident through all the ages. You find it away back in the seventeenth century, you find it in the eighteenth century, you find it in the early years of the nineteenth century, and it is still abundantly evident in the twentieth century. We are still apparently quite satisfied that we have found out about all that can be found out, and we are, many of us, at least, as emphatic as if there was no more to be learned. I was sitting a few years ago in the old garden of the Royal Veterinary College in London one Sunday afternoon, with Sir John McFadyean and William Hunting, who had with him the proof sheets and the plates of that wonderful new book of his on glanders which was published shortly before he died. We were discussing the whole subject in going over these pages of proofs and the plates, and I said: "That little monograph on glanders which you published in 1887 is one of the most interesting books on the subject that I have ever seen." Mr. Hunting said: "Oh, no, that is no good now. It never was much good, and it certainly is no good now." I said: "I differ with you. That book was the only authoritative publication on glanders between the date of the discovery of the Bacillus mallei and the beginning of the use of mallein as a diagnostic agent; and your vagaries and your wonderings and your speculation as to how the contagion of glanders is spread, as set forth in that book, are certainly very interesting to me, and I think will be interesting to all veterinarians in all the years to come, owing to the striking difference between the partial knowledge of the facts which you then had and the much greater knowledge of the nature of glanders which followed the application of mallein as a diagnostic agent."

Those of us who are old enough all remember the mysterious way in which glanders moved before mallein came into use. We would eliminate all the clinical cases from the stable and, after examining all the others very carefully from a clinical standpoint, we would say "This stable is absolutely free from disease," and then a year or fifteen months or eighteen months afterwards there would be another case or two or three cases of glanders, possibly in horses that had been added to the stable since the previous manifestation had occurred, and we would go to that stable again and clean it out, and we would have the same experience over and over again.

Then in regard to tuberculosis. When I was a youngster, when we were asked to examine a herd for tuberculosis, we had no tuberculin to tell us what was going on in that herd; we had to find out if we could—of course, we would not in a great many cases—and yet without any tuberculin, without any syringe, we would make a great deal better fist at picking out diseased animals by clinical examination, than would the modern veterinarian who has been brought up on the bottle, as it were.

Fleming was the first man in the English-speaking world to write a comprehensive work on livestock sanitation. Fleming's "Veterinary Sanitary Science and Police," which was published over thirty years ago, is still a text book, and a most valuable text book.

It was the first *magnum opus* performed by a veterinarian on behalf of livestock sanitation.

We, of course, made tremendous strides when mallein and tuberculin came into use as diagnostic agents. If my memory serves me right, tuberculin came in about 1890 and mallein I think some two years and half later. They made a radical change in our outlook, because they not only simplified the work in regard to tuberculosis and glanders to a very large extent, but they also opened up new channels for pathological research, which have been followed by many faithful, earnest workers ever since.

You all remember when Koch first announced the discovery of tuberculin, that he had regarded it, or at least, he was represented as regarding it, as a curative agent, and you will remember how laboriously Sir John McFadyean in England and many other veterinarians on the continent of Europe experimented with tuberculin, in the hope of being able to establish the fact that it had curative properties, and how they were all disappointed. You will recollect

the French experiments with mallein in 1889, and the Glasgow experiments with the tramway horses in 1900 and 1901, and the still later determination of the authorities of the United States army, to demonstrate the fact that mallein was a curative agent which kept us back for a good many years.

That Glasgow experiment was particularly interesting. After having been tested and retested, a number of tramway horses were sold as ceased reactors considered cured, to various parts of Scotland, with the result that a number of new centers of glanders were created in the rural districts. You all know now, as it has been demonstrated time and again, that there is no surer way of disseminating glanders than by sending out these ceased reactors, as was done from this great city of Chicago for a long time. The veterinary profession owes a very considerable debt of gratitude to the city of Chicago, because of the large amount of professional work which was furnished to the veterinarians of the northwest on account of the horses purchased in the stockyards by intending emigrants, and brought up into our country.

We have not got very far with some diseases. When I think of rabies, I feel that it is fortunate that in the majority of cases, dogs are not very valuable.

In a great many communities it is practically impossible to keep sheep on account of the prevalence of useless curs. It is a good thing that rabies does not as a rule affect animals of any great economic value. It is worth remembering that at the present moment there are men having more or less standing in the medical profession who dispute absolutely the fact that rabies is a disease at all, and simply scout the idea of its being a transmissible disease. This constitutes a very serious reflection, not only on the intelligence of the people who make these statements, but on the standing and influence of the veterinary profession.

We have progressed in the last thirty years in the most remarkable way and we are still going forward in the matter of pathological research. The pathologists both in Europe and in America have done excellent work on behalf of livestock sanitary science. The value of the discoveries of the various serum tests and that as to the prophylaxis of diseases by the use of vaccines and other preparations, cannot be overestimated.

The discovery of the fact that many animals not showing any signs of disease are nevertheless carriers and in many cases breeders of disease, while remaining quite unsuspected individually, is also of very great importance to us all.

Among other great discoveries is that of the intermediate host of which a most outstanding illustration is the excellent work done by the Bureau of Animal Industry in the control of tick fever. I remember being called upon on one occasion away back in 1886 to examine one of a large number of bulls that had come from Missouri to Manitoba, several of which were suffering from red water. The incident is very definitely fixed in my mind because I had a broken thigh at the time, and it happened that the bull, who was occupying a recumbent position suddenly raised himself, and butting me right in the hip sent me flying, broken leg and all. These bulls undoubtedly had tick fever but nobody either in the United States or Canada then thought that the ticks on such animals had anything to do with the disease.

We did not then consider the tick as of any importance and, when one thinks of the tremendous amount of work which has been done in that particular line in less than twenty-five years, one cannot but realize how very new livestock sanitary science really is.

We may now consider a few matters which have more or less bearing on present conditions in their relation to the future. The inauguration of government control was a big step in advance but there is much more uniformity required in the matter of government control than we have at the present time. It is very interesting to take the different regulations issued by the various countries of the world, and compare them, and see the different points of view which are expressed or represented in these regulations. It is still more interesting and much more vitally important to us, to take the regulations

issued by the various states of this American union, and compare them and note the differences in the viewpoints of those responsible for their promulgation. That is all wrong, absolutely all wrong. I think it was on this platform last year that I urged very strongly on the Assistant Secretary of Agriculture for this great country and the gentlemen who were attending that meeting, the necessity of having intelligent coöperation between the various authorities in this country who are responsible for the prevention of the spread of contagious diseases among animals.

It is a duty—it is not a matter of inclination or taste, it is a matter of duty to see that these regulations are uniform, and that they are properly and intelligently enforced. Before I conclude, I am going to speak a little more strongly on that point, but I just want to point out an interesting oversight that occasionally takes place in the drafting of regulations in the matter of livestock sanitary work.

A few years ago I was talking to a certain prominent member of the British Cabinet, and I was discussing what has always been a rather interesting and at times rather painful subject between the Dominion and the mother country, the regulations governing the importation of livestock into Britain, and I said: "You have regulations about the live animals and various other things, but what are you doing about wools?

"For years, ever since England became a great manufacturer of wools, you have had continual recurrence of wool sorter's disease, anthrax, malignant pustule or other forms. What provision have you made for safeguarding the bringing in of wools? You are having outbreaks of anthrax all over England and Scotland and Ireland among farm stock, and you are bringing in this disease in wool, as well as hides. You have absolutely no regulations to prevent the introduction of the disease through wool or hides. Your live stock regulations are very full, very drastic, very severe, but what about your wool and your hides? What about your locust beans? How often does it occur that you have imported locust beans being fed on the same place where anthrax breaks out. You are not looking after that at all."

You all know the drastic nature of the order in regard to dogs which was issued by the British government in 1901, and it was only in 1910 that a master of hounds in one of the English counties died of rabies, and the fact was brought out that he had been bitten by a fox.

Remember that not a foreign dog had been permitted to enter Britain for nine years without going through the most drastic form of quarantine, when this master of hounds was bitten by a fox and died of it. It was found that this was a French fox, and that they were in the habit of bringing in French foxes when they ran short of English foxes, turning them loose and hunting them, without regulation of any kind.

It is only within very recent years that any attention was paid to menagerie animals. I can tell you a rather amusing story about that. I happened to be away from Ottawa once for some time, and during the interval a repatriated Canadian who had presented a public park to one of our towns in Ontario, decided to add a zoo, and he bought two buffaloes here in Chicago. I don't know whether they were indigenous to the city, or whether they had been brought here from some other point, but this was where he bought them. They came over to Sarnia, and as the regulations said that all animals of the bovine species should be submitted to the tuberculin test on admission to Canada, they started in to test those buffaloes. I think the battle lasted about a week or so.

I never saw the actual carnage itself, but I saw the scene of the fight afterwards. The buffaloes were returned to Chicago because they simply would not submit to the tuberculin test. They were susequently shipped in without being tested but the incident furnishes an excellent illustration of the desirability of having all regulations so drafted that they may be properly enforced in a practical way.

It is possible, as we all know, to prevent the introduction of many diseases by a careful physical examination of

wild animals intended for exhibition purposes. With these menageries crossing and recrossing the international boundary during the summer season, it was a matter requiring some little diplomacy to so arrange matters as to be able to make satisfactory and thorough inspection of these large and very costly collections, but it was done, and now every circus that crosses from the United States into Canada has every animal belonging thereto subjected to a careful physical examination.

It is the duty of the veterinary profession in regard to all these matters, to secure at all costs, greater uniformity, greater certainty, and above all greater judgment and sound common sense in the promulgation of regulations to prevent the spread of contagious diseases. In my experience it is of the first importance to have a thorough and full discussion of the whole matter between the authorities and the producers, who, after all, are the parties most vitally interested, but who, because of their lack, in many cases, of the opportunity of giving expression to their views, are apt to be overlooked. The consumers, too, are also of some little importance in this matter. Veterinarians are inclined sometimes to think because of their official positions, that they are the people most vitally and intimately concerned in the enforcement of livestock regulations, but I would suggest that the interests of the producers and the interests of the consumers might be taken into consideration from time to time. Then you want intelligent, thoughtful, friendly, collaboration between the federal and the state, and in our country the provincial and in both countries the municipal authorities, with the professional element, before you can have a satisfactory state of affairs. Without this intelligent collaboration and thorough understanding making for united effort, you do not get very far, and you never will. There is always somebody offended, somebody hurt, somebody troubled.

It is not a bad idea to discuss all regulations carefully with the transportation people. I found when I was in public office that one of the most satisfactory ways of securing gratifying results, before enforcing any new regulations, was if time permitted, to consult everybody who was interested in any way.

Many a trip I made to Washington in the olden days before I imposed some of the rather drastic regulations which it was necessary to impose along our international boundary, and you may have noticed that we never had any friction over these matters between the governments of our respective countries, because of this matter of discussing things beforehand. Dr. Salmon and his successor also followed the same principle and policy in regard to the regulations which they were about to impose, and the lack of friction referred to is just an illustration of the vital importance of consulting with everyone who is going to be interested or possibly injured by the promulgation of new regulations. It is impossible to attach too much importance to this phase of livestock sanitary work. It is especially important in rural districts. Always, when I was in the position of having to do unpleasant things, I found it to be of inestimable value to have a full and free discussion whenever time permitted, with the people in the localities to be affected.

Again, one must bear in mind the effect on the public mind of differences of opinion among those who ought to be authorities. There is not a veterinary practitioner here who has not seen time and again in his own experience the folly of two veterinarians going to look at the same case and expressing widely divergent views as to what was the matter with the animal, and what ought to be done to relieve it. As a rule the farmer says they are both damned fools and don't know what they are talking about.

It is the same in regard to regulations relating to livestock sanitary methods. One authority says so and so, and the next says so and so, and thus it goes on, and the public says: "Well, these veterinarians don't know what they are talking about, they don't

know anything anyway," and that becomes the general opinion.

The effect of divergent opinions between various authorities is always bad, but the effect of sane, level-headed authoritative pronouncements by responsible bodies is always beneficial. That was the reason the international commission on bovine tuberculosis was conceived and created.

The members of the veterinary profession on this continent did not all think alike in regard to some very vital and important features regarding the control of tuberculosis. They were rushing into print, many of them, making statements widely at variance with each other, with, of course, the result that even such great papers as the *Breeders Gazette,* and other agricultural publications were ridiculing the veterinary profession and its attitude in regard to tuberculosis, owners of valuable herds were fighting, and the great livestock world was in a chaotic condition in regard to the proper policy to be pursued regarding bovine tuberculosis.

The commission was created in 1909, and reported at San Francisco in 1910, and its report is still a standard, and I do not think that since that time there has been any serious attempts by anybody to contradict its findings. The advantage of that to the veterinary profession as a whole is incalculable. I feel that I need not take up your time longer on the importance of having intelligent, sane, joint pronouncements in regard to the various contagious diseases with which we are called upon to deal.

Now, do not overlook the crank in this connection. You know cranks are very useful. They are about the most useful members of society, if they are properly dealt with, properly handled and properly controlled. Don't simply say he is a crank and attempt to suppress him as such, but take him in hand and utilize him and his energy, his individuality, his initiative, his courage, because as a rule your crank is no coward. They must, however, be properly utilized, and in every body of this kind there should be a crank committee, a special committee appointed to quietly, unobtrusively, gently but firmly deal with the cranks, and see that their idiosyncratic eccentricities are properly directed.

There is very great danger in matters pertaining to livestock sanitary work, in jumping at conclusions. We want to go very slowly. We may think we know it all, but there are others, there are always others. In a multitude of counselors there is wisdom. It is always well to carefully consider every move beforehand when time permits—and I have only used that in an interjectional way, because time should always permit; in other words, there is no great crisis in livestock sanitation likely to arise nowadays for which the responsible authorities and the veterinary profession as a whole, should not be reasonably well prepared. Forewarned is forearmed, and the entire country has had experiences pointing to the absolute necessity of being forearmed. It is a very bad thing for any individual to be unprepared. If it is a bad thing for an individual, it is certanly a great deal worse for a great nation possessing many multiples of intelligence. We should have the machinery and the organization necessary to deal with any crisis liable to arise in the matter of livestock sanitation, and we should be always prepared, always ready.

Never jump at conclusions. If possible, get together and reach a sane, intelligent decision as to what is to be done, and then having made sure that you are right, go ahead. Of course, one of the drawbacks to this is, that speaking generally of our own profession—the medical profession is just as bad—we are always so cock-sure about the correctness of present-day knowledge. As I have already said, this obsession seems to be universal. It is with us today, and I do not know that it is altogether a bad thing, because after all the only knowledge on which you can base conclusions and take action is the knowledge which you actually have; the knowledge which you are going to have next year or the year after cannot help you very much just at the present time. It is none the less a good thing that one should make

certain before urging a conclusion that there is no more knowledge actually available.

We have had in the last fifty years, in the last thirty years, in the last twenty years, in the last ten years, in the last five years, rapidly accumulating knowledge, and it is quite simple when you come to think of it. You know this world is only about two hundred years old. I am a crank on this two hundred year old business, but when you bear in mind that a hundred years ago, when your grandfather wanted to communicate with my grandfather at a distance, he used exactly the same means, exactly the same methods that Isaac did when he wanted to communicate with Abraham; that a hundred years ago when a man wanted to go from one point to another and could afford to do something besides walk, he used exactly the same apparatus, only very slightly modified, that Pharaoh did when he pursued the Israelites on their flight from Egypt. When you consider that it is only a few years over a hundred since when a man wanted to do anything after dark, he used exactly the same apparatus, only very slightly modified, that Noah did when he went to milk the cow after sun-down on the ark; when you recollect that a hundred years ago the number of people who could read and write in the ordinary civilized community was about equal to the number of people who today cannot, you will realize that it is the brain-development of the multitude which is giving us this rapid accumulation of knowledge, so vast that it is hardly possible for a man to keep up with the procession even in one specific line. It is not until the brain is educated that it develops and it is the cumulative work of all these now educated and developed brains, engaged in studying the problems of life, which is responsible for this modern deluge of knowledge. We must bear in mind that this is getting to be an age of specialization. It is not going to be possible in the future for a man to have even a general knowledge of a great many matters, he will have to confine himself to a certain line of work and follow it out very closely.

We must take advantage of the knowledge of others. The days of individualism in regard to matters of opinion are over. We must have open minds. We must hear what the other fellow has to say. We must listen to his argument if we are going to reach satisfactory solutions, at least on matters of public or general importance.

We want friendly rivalry, but we want to eliminate what has always been the great bugbear of the veterinarian in the little country town, has become a bugbear in the small cities, and even in the large cities, while in official work its cloven foot is constantly becoming evident, and that is jealousy. Friendly rivalry all you like, but jealousy, no.

There should be no antagonistic feelings between the authorities in one state as against the authorities in another state, or between the authorities in any of the states, and the federal authorities at Washington. I am speaking now of your country, because in our country we have reached a fairly satisfactory solution of this difficulty, but your difficulty is that you have too many controls, and unless and until you get hearty and friendly coöperation between these various controlling bodies, you are going to have more or less trouble. You ought to unite for coöperative effort between the producers and the consumers, all your different authorities, professional and otherwise, and the members of the veterinary profession as individuals.

You must always remember that the veterinary practitioner is one of the most indispensable factors in the prevention of contagious diseases of livestock, because he is in touch with the local situation all over the country. It is invaluable to the authorities responsible for the regulation and control of these diseases, in providing for livestock sanitation, that the veterinary practitioners throughout the country should individually and collectively be interested in this work and friendly. It is therefore most important to secure that friendly attitude on the part of practitioners, even in the smallest communities.

You must hitch your wagon to a star. We haven't got anywhere near where we ought to be in the matter of live-stock sanitation. Many of us have high ideals, but it is a long way to the star. There is only one way to reach that star, and that is to go one step at a time. Do the thing that is given to you to do, do it as well as you know how, but do it. There will be something else tomorrow and something else the day after, and you may not be able to keep your eye on the star all the time. Keep the thought of the star at the back of your head, because your eyes will be needed for the work you have to do. Keep right on day by day, and after a while you may reach the star, but in any case, whether you do or not, you will have the satisfaction of knowing that you have done your best, and that you have made a certain amount of progress along the path of service, because, after all, efficient public service is what we are trying to attain. That should be the aim of every practitioner, every pathologist, every official, every publicist. Every one should do his bit, and if he does his bit, and does it as well as he can, does it with honest, earnest, single, minded effort, the results will certainly show for themselves.

An Effective Treatment for Canine Distemper

By GEORGE W. LITTLE, D. V. M., Chief Surgeon of the American Society for the Prevention of Cruelty to Animals, New York City

CANINE distemper is one of the most prevalent and, with the exception of rabies, the most fatal of all diseases of the dog. Fortunate, indeed, is the dog that escapes it during the first year of its life. As we know canine distemper, it is a disease of young and growing dogs. However, the adult, even if it be six or eight years old is not immune. Wherever dogs are closely housed in kennels or detention wards, there is every chance for their contracting the disease irrespective of age. It is a fact, though, that adult animals do resist the ravages of the disease more readily than puppies and young growing dogs.

It is unnecessary to discuss the symptoms of canine distemper. We are all too familiar with the disease to mistake it. However, we cannot be too careful in recognizing that some one symptom such as gastro-enteric disturbances, accompanied with diarrhea or emesis, laryngitis, bronchial cough or pustular skin eruption, may be due to distemper. The incipient symptoms may be almost identical to those found in other conditions, and we must always be suspicious of their origin and etiological significance.

Heretofore, the prognosis in distemper has been extremely unfavorable, even in those cases which were apparently mild, for in this disease the symptoms may change in one day from the mildest to the most severe. The death rate, therefore, has been large, and in some cities amounts to sixty to seventy per cent. as quoted by the best authorities. In the country and small cities the death rate is much less, rarely if ever attaining fifty per cent.

Animals affected with the disease should, of course, be segregated. Thorough disinfection of kennels and of various articles used about the dog should be carried out. An abundance of fresh air and sunlight is also necessary, but in our large cities where dogs are housed in apartments to a great extent, the owner often cannot give the animal these requirements.

In the treatment of dog distemper, many things must be impressed upon the nurse or owner as being of the utmost importance. Strict attention to diet is necessary. No meat should be given. Boiled rice, soup of meat (fat strained), dog biscuit, milk, stale bread and vegetables, may be given. Animals should be fed two or three times daily. Any food remaining untouched should be taken away immediately. It has been proved beyond any doubt that meat is very bad for dogs suffering from distem-

per, where there is always more or less elevation of temperature. Meat, on the other hand, I consider indispensable as a food for healthy animals.

More panaceas and specifics have been used and recommended in the treatment of distemper than in any other disease in the list of dog ills. It suffices to say that all that is necessary in the way of medication is a good tonic in addition to the hypodermic treatment, which I will describe in detail. Strychnin sulphate should be carefully avoided unless given in doses beginning as low as 1-500th of a grain. The tonic should be given preferably in tablet form unless the liquid can be made very palatable. Of the many tonics that I have used, sugar coated tablets containing the following have been found to be the best:

℞

Strychnin arsenate (Abbott or Squibb).....1/500 gr.
Quinin arsenate .....1/64 gr.
Iron arsenite .....1/64 gr.
Nuclein solution ..... 4 min.
Sig.—One tablet t.i.d.

This dose can be gradually increased to five or six tablets three times daily after feeding.

The following formulæ are also useful:

℞

Mang. glycerphosphates ..... 1½ gr.
Soda glycerphosphates .....1/10 gr.
Calcium glycerphosphates ..... ½ gr.
Iron subcarb. ..... 3 gr.
Ol. cinnamon—qs.
and make one tablet.
Sig.—One tablet t.i.d. (Special formula Squibb 20676-17.)

Special liquid mixture

Tr. nux vomica.....3i
Elixir pepsin 3x
Liq. pot. arsenite..... 3I
M rhubarb and soda—qs..... 3ii
Sig.—½ to 1 teaspoonful t.i.d. depending on weight of dog.

Acetanilid and aconite must be carefully avoided. Quinin may be given in a minimum tonic dose. Drastic cathartics and diuretics also are contraindicated. After numerous experiments and the use of all available medicines, vaccines and antitoxins for the treatment of canine distemper, I have found only two agents that have proved of exceptional value. These drugs are Inula and echinacea (Lloyd).

This compound was originated by a New York physician five years ago for the treatment of human tuberculosis. Inula helenium and Echinacea augustifolia work not separately but together to raise the natural resisting powers of the blood against invading organisms and disease. Their action is similar to that of nuclein solution, only much more pronounced. This compound increases the phagocytic power of the leukocytes. Since this is the proof stone of the opsonic index, we are bound to come to the conclusion that the drug raises the index. This one fact must be the principal guide in the therapeutic action of the compound. It will also normalize the proportion between the white and red corpuscles and act very favorably in leukopenia and hyperleukocytosis; it exerts a certain destructive influence upon the coccus group of microörganisms and effectively eliminates the toxins from the body. These statements are based on actual research work.

The technic of the use of Inula and echinacea is simple, although the layman would not be able to administer it. It is administered intramuscularly (in the thigh) every twenty-four hours in doses varying from 2 to 10 c. c., depending on the size of the dog. A small poodle, a spaniel or a Pomeranian would not require more than 2 or 3 c. c. A Boston or an English bull or an Airedale requires 5 c. c. A setter, pointer, collie or Saint Bernard would require 7 to 10 c. c. It is necessary that the medicine be administered into the muscular tissue, for if given subcutaneously an abscess is likely to develop. Five and six hypodermic injections are necessary, although some cases will recover with three or four injections. This is especially true with cats. It is safer, however, to give the animal six injections, alternating, first on one side of the body and then on the other.

The improvement in the patient after two or three injections is remarkable. The dog, seemingly in the last throes of distemper, revives and recovers his appetite, with a corresponding decrease in the severity of all of the symptoms of the disease. This is the point where the animal should receive the best of care, plenty of air, fresh water and food. His chance of recovery is very good provided he receives the best attention and care in respect to regularity of treatment, ventilation and sanitary conditions. In ten days from the beginning of the treatment

the animal is practically ready to leave the hospital.

As a result of the rapid improvement and speedy recovery of the dog in ten days to two weeks, his system has not become debilitated sufficiently for secondary and nervous symptoms to develop. Paralysis of one or more regions of the body, chorea and other nervous affections are conspicuous by their absence as sequelæ of the disease.

In the work of experimentation with Inula and echinacea in canine distemper I have treated eighty cases, twelve of which have died; or, in other words, a mortality of fifteen per cent. These dogs were entered in the contagious ward of our hospital in all stages of the disease. Some had very high temperatures with pneumonia, bronchitis, bronchial coughs and typhoid symptoms with profuse diarrhea. In no instance have I selected these cases by choosing the slightly affected ones for treatment. On the other hand, I have taken everything that came to us, letting down all of the barriers in order to be convinced that this compound is or is not of exceptional value. I have been extremely careful on this point, for I realize that criticisms may be based on the selection of cases.

In the results that I have obtained with the use of Inula and echinacea, I make no exaggeration. I have purposely waited until I had treated a sufficient number of cases in order to see whether my treatment was better than the ordinary methods. I have determined the best possible way to treat the animal with respect to diet, medicine and frequency of hypodermic administration.

One of the most prominent veterinarians in New York City, Dr. S. K. Johnson, is using Inula and echinacea in his hospital, and in the treatment of six cases of distemper, all of them made good recoveries. His method and frequency of administration are identical with my own, including about the same medicinal treatment.

We should bear in mind that no treatment will succeed in canine distemper unless it is regularly and systematically employed. One dose will not cure the animal, and single doses administered two or three days apart will not help. Many medicines and treatments are condemned before they are given a chance to help the animal.

I have also used Inula and echinacea in cases of pleurisy and pneumonia not due to distemper infection, and I find that it operates just as well in those conditions as in distemper. I have used it in five cases of influenza in horses and in one case of strangles, being able to save all five horses suffering from influenza, but the one with strangles died. I may say that the strangles patient had been sick several days before being entered at the hospital and symptoms of general septicemia were present. In each of the above cases, I used one ounce of Inula and echinacea with an equal quantity of sterile normal salt solution injected intravenously at intervals of twenty-four hours for five and six doses. No shock attends the administration of the medicine. In horses weighing 1,500 to 1,700 pounds, I would advise the use of one and one-half to two ounces of the Inula and echinacea with an equal amount of sterile salt solution.

I should greatly appreciate any data that could be furnished at a later time on the action and efficiency of this compound in influenza and pneumonia or possibly purpura hemorrhagica of horses.

After numerous doses of this compound, a negative phase is produced similar to the condition found with the administration of vaccines and serums. If the medicine is continued, no effect will be noticed with Inula and echinacea except that the treatment does not seem to benefit the patient. On the other hand, continued use of vaccines and serums will cause a rapid cachexia, anemia and partial paralysis or myelitis, making the patients practically helpless or useless.

It can be readily understood that this compound is not in the strict sense of the word a specific for any one disease. It operates equally well in pneumonia, pleurisy or bronchitis, as it does in canine distemper or equine influenza. And, by the way, it is among the best known treatments for human influenza. The phagocytic power of the leukocytes is increased and the invading bacteria and

their toxins are met with a superior force which drives them to cover.

In summarizing the use of Inula and echinacea compound in canine distemper, it suffices to state that I think it is superior in every respect to any other treatment for this disease. It is the best and most powerful medium by which the opsonic index may be raised. It is absolutely non-toxic. It must be used regularly and systematically, however, if good results are to follow. The mortality in distemper can be reduced to a minimum by its use, and by reason of its therapeutic power, it promises to be widely used in many febrile diseases of the respiratory tract and particularly in equine influenza.

Milk Inspection—Its Relation to the Veterinarian*

By HUBERT SHULL, V. S., B. V. Sc., Texarkana, Arkansas-Texas

I HAVE chosen the subject of milk inspection and its relation to the veterinarian, because it is uppermost in my mind at all times. Besides I believe that practitioners do not take the interest that they should in the dairyman and his work. This paper is for the practitioner and not for the milk inspector.

The veterinarian of today must give a lot of his attention to the dairy industry, of course, more in the North than in the South. Still the South and West are fast developing along dairy lines. To quote Doctor Klofanda, "The civilized world pays tribute to the cow. She is the one thing that man can always get something out of. She is one of the few stock concerns of the country that bond holders have little chance to milk. When she kicks we can kill her—a blessed privilege which might have a wider range. She is the symbol of contentment, the one thing needed in American life. She is life itself to countless children." The veterinarian should always be ready and prepared to advise the farmer and dairyman, for what professional man is better prepared to come in close contact with rural life than the veterinarian. Many may feel that having paid for their education they should be paid to pass it along, but let me point out to you that the banks and business men of today are putting out money on good live-stock in order to build up the farms of the South. Of course they do not realize at once on their investments, but in time they do—just so with the veterinarian. We should advise the dairyman and the prospective dairyman as to the best breeds of dairy cattle, their characteristics, their milk and butter records. We should at all times be free with advice as to the formation of a dairy herd, care of calves and young stock, the kind of bull to use; also as to feeds and feeding, telling the dairyman of good bulletins and other literature.[1]

The production and distribution of milk and milk products engage the attention of no small part of our population. The use of milk is general and not limited to any class or locality; it is regarded as a necessity by almost every family and for this reason information regarding it is important.

A quart is equivalent in food value to any one of the following: three quarters of a pound of sirloin steak or loin of pork, two pounds of chicken, two dozen oysters, eight eggs, or one

*Read at annual meeting of the Arkansas Veterinary Medical Association, Little Rock, Arkansas, January, 1917.

[1]Granted that this statement is true of the veterinarian who has had an agricultural college training, but is it advisable for the veterinarian without such training or practical experience in dairying? Is not advice on these matters seriously near the province of the county agricultural adviser, or county agent as he is more frequently called? Veterinarians have not been slow to resent intrusion into their specialty by county agents. Should they not show a becoming respect for the county agent's particular line? It is true that practicing veterinarians should encourage dairying as much as they can in localities adapted to this industry; and they should be well informed at least as to the scientific aspects of the industry; but doesn't it savor of quackery for them to undertake to teach it without any special qualifications for teaching it or at best no more than an empirical knowledge of the subject?—Eds.

pound of halibut. Besides, these various foods must be cooked and in all cases this cooking process is an expense. And yet, as has been pointed out by Prof. Rosenau of Harvard, the most valuable article of diet, with its various contaminations as ordinarily sold in our cities, is responsible for more sickness and death than all other foods combined. Obviously then we must see that our milk is safeguarded and these dangers removed.

The hygiene of the dairy, is something that should concern all veterinarians for it is here that we have the internal and external influences upon the milk, the internal being those of different forms of mastitis, and tuberculosis, and the external being, foods, pasture, location, surroundings and construction of buildings, bedding, cleaning of stable and cow, utensils, water supply, ventilation and windows. These are things that all veterinarians know or should know. If we gain the confidence of the farmer and dairyman, then it is that he will listen to our advice in such matters, in fact will be seeking it. It follows that if there is any work to be done the veterinarian will be called and confidence placed in his professional ability.

As has been said milk is responsible for more sickness and death than all other foods together, as pointed out by Prof. Rosenau, there are several reasons for this: first, bacteria grow well in milk, therefore, a very slight infection may produce widespread and serious results; second, of all foodstuffs milk is the most difficult to obtain, handle, transport, and deliver in a clean, fresh and satisfactory condition; third, it is the most readily decomposable of all our foods; fourth, it is the only standard article of diet obtained from animal sources consumed in its raw state.

Safeguarding the purity of the milk is a protection to the health in several ways: first, the health of the farmer's family, who use a portion of the milk themselves; second, the health of the calves which live largely on milk; then of course the milk delivered to the city should be pure and clean, as so much of it is used for infant feeding. Dirty cows, unclean milkers, improper cooling, diseased cows, and insanitary surroundings are problems to be solved at the producer's end. It is here that the veterinarian can be of aid to humanity. We are equipped by education and temperament for dairy advice, and this advice when freely given, as to the raising of healthy calves, advice on the milk question, and controlling venereal diseases among cattle, will pay us in dollars in the long run. It is not always on the poor man's farm that we find insanitary or dangerous conditions. A couple of examples will illustrate this point. The first farmer had a small herd of twelve cows, kept in good condition and clean surroundings; the second herd was a large one, on a large farm, equipped with electric power, lighting, chopping machines, and other electric appliances. Although this farmer was producing milk on a large scale for market, he was neglecting the most elementary precautions. His cows were caked with filth and his electric milking machine showed no evidence of having been washed. The rubber tubes and pipes were merely soaked in lime water each day and never cleaned. Of course, it is impossible to produce clean milk under such conditions. While speaking of milking machines, they require proper care, or the milk produced will be worse than that produced by hand milking.

Our forefathers said that milk was bloody because somebody had killed a toad, or it was bitter because of witchcraft. How much easier it was to run a dairy in those days. Nobody was expected to cure the bloody or bitter milk. How many such people with a few cows do we find in our state today? Even at that only a few farmers are able to find the source of bitter milk. It should be easy for the veterinarian to help the farmer find the cause of the bitter milk. If only from one or so of the cows, then it is the health or the cow is going dry. If from all the cows, then it is caused by something eaten perhaps, and if the milk gets bitter on standing, it is bacteria. Various bacteria contaminate the milk, and various methods have been introduced to destroy them. The

methods naturally consisted first in the use of chemicals, but experience taught that germ-killing agents had to be abandoned on account of their danger to the health of human beings. The ultra-violet rays were then used but found to be too expensive; therefore, the heating process seems to be the only feasible method. Sterilization, although destroying all germ life to the fullest extent was found to make milk nearly indigestible for infants; therefore, it had to be abandoned. Today the best method is pasteurization. No one, who has been making a scientific study of the milk problem, and who is, therefore, in a position to give an intelligent opinion, has, within the past seven years, at least, questioned for a moment the advisability of pasteurization of all milk for infants and children, except that coming from a herd shown to be free from tuberculosis and under direct supervision of a veterinarian, or that which has been procured under conditions necessary for the production of certified milk.

Milk is responsible for all cases of bovine tuberculosis in children which constitute twenty-five per cent to twenty-six per cent of all cases of tuberculosis in children under sixteen years of age, and also a source of the transmission of human tuberculosis. Ordinary market milk is responsible for about forty per cent of all diarrheal diseases of children during the hot summer months. Several hundred cases of diphtheria, scarlet fever, septic sore throat and typhoid fever have been traced to a single dairy. For illustration and also to show how pasteurization protects; a dairy farm in California was shipping ninety gallons of milk per day to one city and 600 gallons to another. The head milker on the farm took ill with typhoid fever, yet went on with his regular work for at least a week, before he was so sick he ceased work. The ninety-gallon shipment was bottled in that city and delivered to the customers in the ordinary way and caused a typhoid epidemic. The 600 gallons of milk were pasteurized and bottled and delivered in the usual way and caused no cases of typhoid whatever. Here is a unique experiment with human beings, accidental of course, but demonstrating conclusively the protection that pasteurization gives the milk consumer. No amount of inspection, no matter how well organized, could detect these carriers.

Scientific pasteurization is the only method to eliminate these dangers from the milk supply. Scientific pasteurization is the heating of milk to a temperature of from 140 degrees to 150 degrees, holding it at the temperature for thirty minutes and at once cooling it to 40 degrees or 45. This will destroy all disease-producing germs and ninety-nine per cent of all other bacteria in milk, and does not affect the nutritive value. It does not produce any chemical change. There is no recorded epidemic of any form of communicable disease that has been traced to pasteurized milk. It must be said, however, that there are still a number of medical men and health officers who contend that pasteurized milk is nothing more than cooked filth, but sanitarians and health officers should insist that pasteurized milk must be pasteurized clean milk.

It has been claimed that, all lactic acid bacilli having been destroyed by pasteurization, the milk will not sour but rot. This is incorrect as has been repeatedly demonstrated by bacteriological tests. Some have expressed the fear that pasteurizing will have a tendency to influence people to relax in their efforts to secure an absolutely clean milk. This is wrong; no municipality should accept milk from an unknown source whether pasteurized or not. Then we occasionally hear the objection to the taste of pasteurized milk, the complaint usually being that the milk does not taste as it used to. It is well founded in some cases as there is an absence of dissolved cow manure. This has been almost a common ingredient of market milk. Another objection, made at times by the consumer, is that there is a loss in the amount of cream. A complete series of experiments by the New York City department of health showed this to be false. Some objections are on the

(*Continued on page* 726)

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Last month readers of this page were told that an advance in the subscription price of the AMERICAN JOURNAL OF VETERINARY MEDICINE was inevitable if its present standard is maintained. At that time it was not possible to predict just what increase in price would be necessary.

The increased costs of manufacture easily justify doubling the subscription price, but it is believed that an advance of $1 a year can be made to suffice, at least for the present. The rapidly increasing number of subscribers and the growing income from advertising happily enable the Journal to accommodate itself to the burden of a hundred per cent. increased costs, with a raise of only fifty per cent. in the subscription price.

At $3 a year the subscription price of the AMERICAN JOURNAL OF VETERINARY MEDICINE is less than any other veterinary publication in the world comparable to it. European veterinary publications even before the war ranged in price from $2.75 to $8.75 a year, most of the better ones being $5 or over. Recently the Veterinary News, the lowest priced one, has increased its rate to $3.75 a year. In this country, of all the veterinary journals that have been started, only two quarterlies and two monthlies survive. Of these the AMERICAN JOURNAL OF VETERINARY MEDICINE is the oldest. The quarterlies are small and their price 25 cents an issue. For the material published, they cost three or four times the price of the AMERICAN JOURNAL OF VETERINARY MEDICINE, even at the new price. The other monthly, the JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION is $3 a year.

The $3 price will take effect at once for new subscriptions; but renewals will be accepted at the old price—$2 a year—until December 1st.

Looking Forward

The stimulating and inspiring article by Dr. Dalrymple, in this issue, strikes an optimistic chord that is peculiarly appropriate to be sounded at this time when so much history is in the making. This is an interval for looking forward. War is always a period of transition when events reach a high degree of flux, but when they crystallize again into a more stable form, it is usually found that the world has made a great stride forward. Our country has taken a hand in the struggle with this object in view, that out of victory for our cause nations may attain to a higher level in their conduct toward each other and the peace and prosperity of all peoples be enhanced thereby. Therefore, the dawn of the

world's tomorrow, when we have safely and triumphantly passed through the storm of the present readjustment, is uppermost in our anticipations.

What is the dominant note in the veterinarian's expectations, of course, is the future of his profession, and all signs of times and things seem to counsel him to be of good cheer. While the war and its inevitable period of reconstruction may affect some lines of business unfavorably, at least for a time, it is evident that agricultural pursuits will not suffer, but on the contrary, will receive a fresh impetus. The present conflict has brought home to the minds of all the importance of agriculture in the life of the nation. It will be remembered that Thomas Jefferson emphasized this phase of our industry in his day and was criticized as laying too much stress upon it, the tendency among most politicians and other men of influence being to accentuate the rôle played by manufacture. Since that time this leaning of the country's attention toward artificial production and away from land and livestock has become intensified, until confronted by an extraordinary condition the people are beginning to realize that they have been neglecting to note the enormous weight of agriculture in the balance of the nation's economy. This new recognition that the world situation is forcing on the public mind augurs well for the farmer and livestock producer, and following in the wake of their ranks as they grow in numbers and prosperity, the veterinarian cannot help but glean a greater and richer harvest both of material wealth and of the world's applause.

However, it is not alone as dependents upon conditions external to the profession itself that veterinarians face a future destiny of great promise. The improvements and opportunities that by their own initiative they have seized upon and utilized for the benefit of themselves, their communities and the nation at large, have brought them out of obscurity and undervaluation into the light of public esteem and scientific recognition.

The successful eradication of foot-and-mouth disease in this country, the great progress made in tick eradication in the South, the campaigns for the control of hog cholera and bovine tuberculosis, are projects that proclaim in no uncertain tones the efficiency of the veterinary profession. Likewise, raising the standard of education in the veterinary colleges must be counted as a significant step in the history of veterinary progress. The official recognition of the army veterinarian is additional evidence of the upward trend of the profession.

Furthermore, the social standing of the veterinarian in his community is reaching a higher plane as his fellow citizens become aware of his worth and attainments as a guardian of animal life. Veterinarians in turn are realizing the value of fostering this growing attitude of interest among the laity, and several state associations at their annual meetings devote a part of their programs to papers by livestock men and hold popular sessions to which the public is invited where non-technical discussions of veterinary subjects are presented. This custom of taking the people into their confidence is one that should be encouraged and emulated to a greater degree, because it heralds a widening influence of the profession as such and an increased regard for its members as strivers for the common good.

Looking forward, therefore, we do not need rose-colored glasses to find the prospect a heartening one, for although there is still much to accomplish in the way of overcoming obstacles, yet as a whole, veterinary science is looking up and being looked up to more and more. The rise of the profession of human medicine to its present position of power and authority offers a forecast of that which those who are engaged in the veterinary field will also achieve to the fullest. The preliminary skirmishes have been won. The day of the big push has come. The gates of the future stand ajar and the vista is ablaze with possibilities. Forward march!—G. G. F.

Difficulties are things that show what men are.—Epictetus.

The wise man does no wrong in changing his habits with the times. —Cato.

THE TREATMENT OF MANGE IN MILITARY HORSES

Cutaneous diseases of horses that are in war service constitute common ailments that are often distressing to the subjects and troublesome for the veterinary officers who are in charge of the treatment of such cases. Particularly is this true of mange. This disease as it occurs in army horses, if not controlled, causes death of some of the affected animals. We quote from EPIZOOTICS, AND THEIR CONTROL DURING WAR, the following:

French-Official.

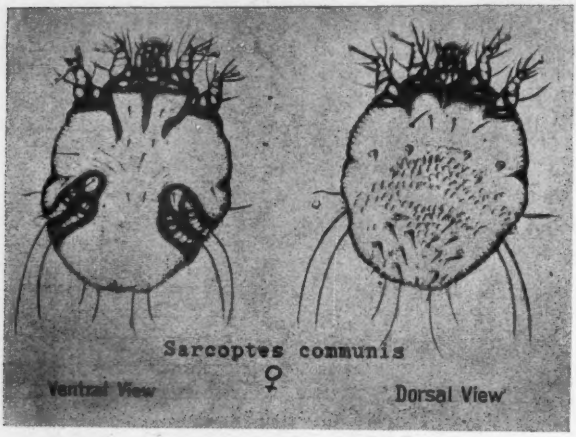
INFIRMARY FOR DONKEYS WOUNDED AT THE FRONT, MARNE DISTRICT, FRANCE.

Even the lowly donkey, second only to the dove as an emblem of peace, is made to serve martial purposes, and thousands of them are to be seen with the armies of France. The above shows an infirmary used exclusively for these docile animals wounded at the front or disabled in the hard service that modern warfare requires of man and beast. Note the solid masonry and the tiled roofs of the buildings, which are typical for the country. Except for temporary structures for army use, our soldiers will see no wooden buildings, neither city nor farm, residence nor barn, in Europe.

"On account of the rapid spread of sarcoptic and psoroptic mange, every skin eruption, which is associated with a sense of itching, is for the sake of precaution to be treated with anti-mange remedies. Before treatment is begun, the bark-like layers are to be softened so that the chemical preparations which are used to destroy the mites, may come in direct contact with the parasites. For this purpose green soap or 10 per cent carbol-glycerin is best used. The preparations are allowed to act for about 24 hours on the areas most affected. After the lapse of this period they are washed off and the mange liniment is thoroughly rubbed in by using a brush. Marek recommends that the actual treatment should be preceded always by clipping the hair and rubbing potash soap over the entire body, which is afterwards washed off.

"Many preparations have been recommended for destroying mites. I shall only allude to such preparations as have proved successful, according to the au-

thoritative judgment of those colleagues who had much to do with the combating of mange, in the world war. When compounded preparations were not available, petroleum or two to three per cent creolin, lysol or bacillol solutions when rubbed in, gave good results. According to Marek, a mixture of one part petroleum and two parts sesame oil gave much better results than the classical mange remedies. On account of the irritating action of petroleum, the treatment must be carried out somewhat carefully. Peru balsam in four to five per cent. alcoholic solution or in a four to five per cent. salve was also used with good results,



The handling of mange has brought severe though unmerited criticism of the British army veterinary service from would-be humanitarians. That a diagnosis of mange infestation might be made at the earliest possible moment, it was necessary to clip all horses sent to the front even in the severest weather, and many died of the subsequent exposure to the dismay of line officers. But there was no help for it; it was the lesser of two evils.

but its high cost may prohibit its use in large quantity.

"In the majority of cases Fröhner's creolin liniment was used. After the soap has been washed off twenty-four hours, the following liniment should be rubbed in daily over one-third of the body:

℞

Creolini anglici.
Spiritus .....aa. 100.0
Sapon. virid. 800.0
Misce.
Signa. Mange liniment.

"Creolin, which at times is very expensive, can be replaced with carboxol II.

"In place of using Fröhner's liniment, the following mixture may be used: Liquor cresoli saponatus, one part; spiritus dilutus, nine parts, which can be kept on hand.

"After an interval of two to three days, the preparation is washed off with soap and warm water and the diseased areas of the skin as well as new lesions are again treated with the liniment. One day later, the treatment is repeated on the different third portions of the body in the same order as first applied. [Application to one-third of the body at a time is done for the purpose of avoiding poisoning the animal that is being treated.] Careful application of this kind repeated once leads to complete recovery in most cases. Four to five weeks later the areas of the skin that had been diseased were covered with hair. According to Marek, the Vienna tar liniment and creosote oil (one to twenty-five) as used in his clinic, have proved successful for a long time, while cresol liniment failed to effect a cure.

℞

Picis liq.
Sulphuris resub. aa. 100
Sapon. virid.
Spiritus .....aa. 200
Misce (Vienna tar liniment).

"After applying both of these preparations four to six times successively on the different third portions of the body, a cure was effected in the most obstinate cases. However, the creosote oil was somewhat more irritating and was better borne in the winter season, the irritation of the oil being increased by warmth. Relapses occurred only when the tar liniment alone was used. These mange remedies were washed off with soap and warm water four or five days after completion of the treatment, two washings being necessary to cleanse the animal. The application of the remedy as well as

its removal is done in the stable in winter and in the open in summer. Good results are obtained only when the attendants who carry out the treatment are carefully instructed in their duties and continuously watched; otherwise,

French-Official.
TREATING MANGE IN ARMY HORSES, MARNE DISTRICT, FRANCE.

Dipping vats so common in the tick fever district of the South and in the scab infected regions of the West and Southwest of this country, were unknown in Europe at the outbreak of the war, and for months and months the scourge of mange among army horses was combated by hand applications of parasiticides. The above shows a great improvement in the method of treating mange but an arrangement still inferior to the American dipping vat. A new device still in the experimental stage, consists of a gas chamber in which the horse is enclosed to his eyes and the mange parasites and nits subjected to sulphur dioxid. It appears to be effective.

the parts of the body that are difficult to reach are liable to escape the treatment. In such cases, the duration of treatment is extended.

"Dipping vats were constructed in many horse hospitals in which the horses could be submerged to their back in a creolin solution. Their bodies were thoroughly rubbed while in the solution. According to Marek, such treatment gave good results.

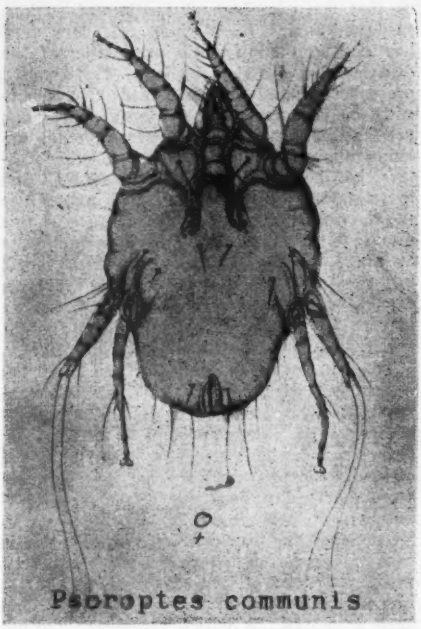
Veterinary Police Regulations

"Aside from isolating and treating sick and suspected animals, the army veterinary regulations prescribe the isolation of horses exposed to mange. The time of isolation is placed at six weeks, figuring from the last day of contact with mangy horses.

"Special stress should be laid on the disinfection of stables and equipment, particularly the saddle blankets and grooming utensils. Since isolation of sick and suspected animals is not possible in the field, they should be segregated; saddle blankets and grooming utensils should be disinfected.

Lifting the Quarantine

"Mange is to be considered eradicated and the prescribed precautionary measures discontinued when (a) horses that had been mangy show no symptoms of the affection within six weeks after the termination of treatment; (b) when the mangy and exposed horses have been declared healthy; and (c) when the prescribed disinfection has been carried out."



A CORRECTION

In the September issue, among the subscriptions to the army relief fund, appeared "a few veterinarians of the Alumni of the Ohio State College, $68." This should have been "a few veterinarians of the Alumni of the Iowa State College."

Animals are such agreeable friends—they ask no questions, they pass no criticisms.—George Eliot.

BULLETINS OF INTEREST TO VETERINARIANS

Studies in Forage Poisoning. A Preliminary Report on an Anaerobic Bacillus of Etiologic Significance

Bulletin No. 207, by Robert Graham, A. L. Brueckner and R. L. Pontius, of the Kentucky Agricultural Experiment Station, is devoted to experimental studies dealing with the cause of forage poisoning. The cause of forage poisoning in live stock has remained an open question, yet moldy feed has been considered by some the exciting factor. Laboratory workers, both federal and state, inform us that the experimental feeding of various suspected molds found upon poisonous feed has not been consistently productive of the disease. No denial is made of the common presence of molds in some feeds that apparently contain the cause of forage poisoning, yet the disease-producing power of molds existing upon feeds, independent of other factors, has been seriously questioned by many investigators. That certain molds may favor the development of the primary cause of this disease is brought out by experimental tests at the Kentucky station, and the reader is left to infer that bacterial toxins or poisons capable of causing clinical forage poisoning may readily develop in association with molds under laboratory conditions.

The laboratory of animal pathology of the Kentucky station from which this work emanates has by reason of the numerous natural outbreaks of forage poisoning in the blue grass region had excellent opportunity of observing the disease. An oat hay obtained from the Griffith Bros. stock farm near Lexington, Ky., was found by feeding tests to incorporate the causative factor. The disease was consistently produced in horses by feeding the hay and also by allowing horses to consume water in which the oat hay had been immersed. A liberal amount of the oat hay in question provided material for experimental studies for a period of two years, during which time various observations upon the disease were made. Various microörganisms were isolated from the oat hay which proved to be non-pathogenic. The investigators were able, however, to isolate a toxin-producing germ from the oats which resembled one of the germs (Bacillus botulinus) long known to cause meat poisoning in man. In 1901 the late Dr. Leonard Pearson of the University of Pennsylvania suggested that forage poisoning in animals possessed a certain clinical analogy to meat poisoning in man. This theory has received consideration by Drs. Mohler, Buckley and Shippen of the Bureau of Animal Industry, who report the fatal effect produced by B. botulinus when fed to horses and mules. However, it has remained for Graham and his co-workers at the Kentucky station to furnish specific evidence of such a correlation by isolating an organism resembling B. botulinus from a poisonous oat hay. This organism upon being artificially grown in the laboratory and fed to horses produced clinical forage poisoning and death.

In studying the relation between the germ isolated from the oat hay and B. botulinus, the writers resorted to the practical application of serum made from B. botulinus. It was found that botulism antitoxin protected horses and guinea pigs against a fatal artificial infection of the organism isolated from the oat hay and also proved efficacious in protecting horses drinking water in which the oat hay had been immersed.

These investigations were also contained in the examination of silage which produced death when fed to horses. From this silage a similar disease-producing germ was isolated. Similar results were obtained in protecting guinea pigs and horses against a fatal artificial infection of the organism isolated from the silage by the use of botulism antitoxic serum.

The theory that poison-producing organisms of the type causing meat poisoning in man must of necessity develop upon meat products is apparently not well founded, as laboratory evidence indicates that corn silage decoction, as well as other forage extracts, furnishes favorable food for their growth in the laboratory. The presence of this type of organism in nature upon feeds which were found to produce forage poisoning is indisputable evidence. The possibility still remains that there may be several causes of forage poisoning, yet the establishment of one etiologic factor, together with a reliable serum treatment, should prove valuable in the ultimate control of this disease.

Bacillary White Diarrhea or Fatal Septicemia of Chicks and Coccidiosis or Coccidial Enteritis of Chicks

By J. R. Beach, Berkeley, Cal.

Circular No. 162. College of Agriculture, University of California. Bacillary white diarrhea and coccidiosis are the two most prevalent and most serious diseases of chicks. This bulletin discusses the etiology, lesions, diagnosis, method of infection, prognosis, treatment and prevention of these two ailments. Bacillary white diarrhea is caused by the Bacterium pullorum which is present in eggs from infected hens, and chicks hatched from such eggs are victims of the disease. Coccidiosis is a protozoan disease caused by the Coccidium tenellum and must be combated by the observance of sanitary measures in the care of the flock.

Department of Surgery

By L. A. MERILLAT

Abscess

FROM the viewpoint of the therapist abscess is a combat between the body and invading microbe in which the former is becoming the victor. The fact that the body is winning the battle is the basis upon which to plan the treatment. Meddlesome interference may turn the trend of the battle by extending the inflammatory process over a wider area. Irritating remedies and premature lancing are harmful in almost every instance. It is only when abscess threatens to destroy life before it could possibly ripen that early interference is indicated.

Treatment. Pyogenesis in confined places (abscess) should be treated by gentle fomentations, warm poultices, antiseptic lotions and absolute rest of the part affected, until it has reached the stage called "pointing," that is until the abscess is "ripe." This is announced by the disappearance of the surrounding edema and fluctuation of its center. In hairy places an abscess may said to be "ripe" when the hairs at a definite place may be pulled out easily, even though fluctuation may not yet be perceptible. Irritating liniments and blisters are harmful because they disguise this physiognomy and thus mask the sole symptom by which the stages of development can be determined.

When ripe, contents are evacuated by lancing at the point of fluctuation, or at a point below if drainage is thought essential. The interior of the cavity should not be disturbed by harsh instrumentation or digital manipulation, as such measures will serve no useful purpose and might open up avenues for the infection extending beyond the now well walled-off cavity, and often an abscess cavity is traversed by vessels that have resisted the dissolving influence of

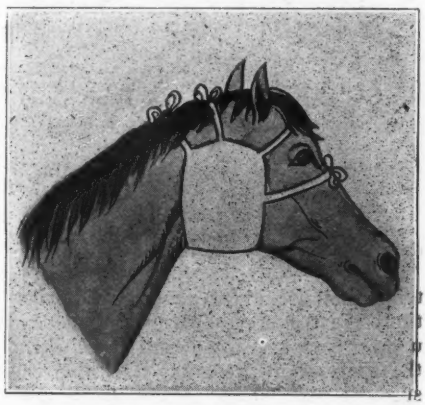


Fig. 1.
Showing method of applying bandages to pharyngeal region.

the process of abscess formation, and which if torn will bleed into the cavity and invite putrefaction or even cause serious bleeding. And always the resulting clot is something that must again be removed either *en masse* or by the process of decomposition. The cicatrization of the cavity is thus retarded. The contents are simply pressed out by manipulating the enlargement. When so located that this is not feasible gentle irrigations with sterilized water or a

weak antiseptic solution are helpful. It is important that solutions thus injected should again flow out so that the cavity is left dry. In the dry, empty state cicatrization of an abscess cavity is exceedingly rapid. Sloughs (the core) of an abscess should be removed by pressure or gentle traction with forceps. If still attached to viable surroundings it may be left undisturbed for a few days longer, until separation is complete. Cutting out a slough in an abscess cavity is not conducive to good results in most cases.

The management during the days of cicatrization is much the same as after lancing. Pressing or wiping out the con-

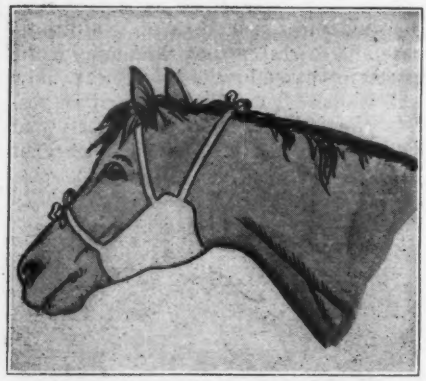


Fig. 2.
A bandage placed in such manner that the sublingual region may be poulticed.

tents that accumulate and gentle irigations are the chief measures to depend upon. Gauze wicks placed loosely into the aperture to prevent a too rapid closure, or packing the cavity loosely with sterilized or antiseptic waddings that will absorb the re-accumulations may be practical. The latter is particularly needed when the aperture is proximally located or where pressure of surrounding structures keeps the aperture closed against free exit of the pus.

The best irrigation for an abscess cavity is sterilized water, and the best packing is iodoform gauze.

Peroxid of hydrogen has been used as a means of "boiling out" pus that can not otherwise be evacuated. This is allowable only where there is a free exit to the frothy issue. When confined the frothing of peroxid and pus may carry infections into healthy parts to the decided detriment of the healing of the abscess. Hot abscesses, especially subcutaneous abscesses, are dangerous from this standpoint.

Special Abscess

Abscess of the Submaxillary Lymph nodes. Submaxillary abscess. These abscesses occur in horses and in dogs. In the former they are usually associated with distemper and influenza, but sometimes in animals of all ages develop independent of any systemic disease. Abscess of this node arises from purulent products absorbed by the lymph vessels of the nasal mucous membrane, which being exposed to external influences and inhaled particles gathers infectious material which is carried to it and causes abscess. Thus is explained appearance of suppurating processes not associated with febrile diseases.

Treatment. The recommendations for the treatment of abscess in general apply here without exception. The inflamed part is fomented or poulticed until a soft place appears in or near the summit of the enlargement. This is announced by fluctuation, the loosening of the hairs over a small central spot, or an oozing of a serous exudate into the hairs. When these signs appear lancing may be practiced, but it is never advisable to interfere earlier because the pus is too deep and the abscess has not yet hollowed out a well defined cavity. These abscesses must be lanced toward the median line rather than too near the border of the jaw, because of the slight danger of incising the vascular structures of importance traversing the field. The lancing is followed by pressing out the accumulated pus patiently until all is evacuated, and that which may be lodged in the recesses of the anfractuous wall may be dislodged with injections of hydrogen peroxid. Harsh digital manipulations within the cavity are forbidden as harmful. The aperture after the contents are all removed is loosely waded with a wick of gauze, oakum or cotton for twenty-four hours, when it may be removed for a second dressing and irrigation with peroxid. Thereafter, no treatment will be required as cicatri-

zation will be rapid. *Multiple abscesses of the muzzle* associated with submaxillary abscess in cases of bastard strangles and influenza are lanced as fast as they reach a safe stage of maturity. Although these are sometimes only a chain of

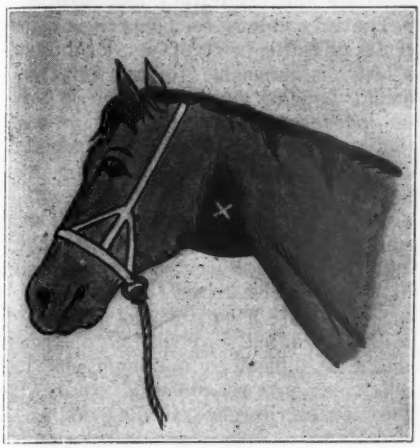


Fig. 3.

small pustules there is always an angry surrounding edema that is aggravated by lancing them too soon.

Retropharyngeal Abscess

These occur in horse distemper and influenza, tuberculosis of cattle, antinomycosis and sometimes independent of systemic disease. Their location adjacent to the throat distinguishes them as especially serious. They enroach upon respiration and deglutition, the direction of least resistence being medial. Laterally, the structures are firm and thick and prevent free bulging in that direction. With respirations endangered and swallowing of food blocked the retropharyngeal abscess presents a more complex problem than those more favorably located.

Treatment. Hot applications to the throat, feeding with succulent mashes and general attention to the patient's comfort are needed during the developmental period, and if the respirations are threatening tracheotomy should be performed. This not only gives the suffering patient the much needed comfort but also appeases the anxiety over the threatening dyspnea. When there is no conspicuous bulging in the parotid region that would, serve as a land-mark for lancing, these alleviative measures must be followed until the abscess breaks into the pharynx.

Small retropharyngeal abscesses of horses; just large enough to cause distress in swallowing and dyspnea during eating, are often slow to ripen and burst, and thus cause a prolonged illness that may seem puzzling to the practitioner for three to four weeks. When they do finally burst into the pharynx the relief is instantaneous and convalescence rapid.

In cattle, being usually tuberculous, these abscesses are cold and sojourn unchanged week after week and even month after month without showing any tendency whatever of bursting either into the pharynx or externally, and when attacked surgically by lancing and draining they cicatrize very slowly and may become a source of generalization.

The lancing of a retropharyngeal abscess should be done with great care, since the invading incision traverses a highly vascular field as well as the parotid gland. We select as the seat of operation the summit (Fig. 3,"x") of the

Fig. 4.
Retropharyngeal Tuberculous Abscess.

bulged region where the walls of the abscess cavity will be found thinnest, instead of trying to make an opening at

the bottom of the cavity where the walls are too thick for a safe penetration. Attempts to perforate a retropharyngeal abscess from below or even at a low point in the hope of providing drainage by gravitation are seldom successful and are too often attended with serious bleeding. The plan of procedure is to carefully incise the skin and superficial fascia with a scalpel and then bore a hole through the remainder of the walls with a blunt hemostat or similar instrument. This boring with a blunt instrument pushes the vessels aside instead of perforating them and thus assures safety of the procedure. When the instrument has entered the pus cavity the aperture is widened by opening the forcep and working it about until the pus flows freely. The cavity may then be flushed with hydrogen peroxid and emptied by drawing out the remaining liquid with a syringe. It is advisable to leave the cavity as dry as possible in the interest of prompt cicatrization. The aperture is plugged tightly with oakum or gauze to still further enlarge it. This is removed after twenty-four hours to evacuate the re-accumulated products. A second irrigation is seldom required. The aperture is kept from closing by the daily application of a loose wick of gauze.

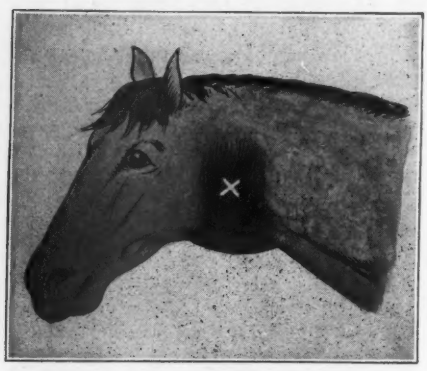


Fig. 5.

The proper time to operate upon these abscesses must depend upon the effect they have upon breathing and eating. So long as the patient is not in danger it is better to let abscesses ripen well, but when they cause an enfeebling discomfort or actually endanger life there is justification for an earlier intervention that will reduce the volume of the enlargement within where it is encroaching upon the digestive and respiratory thoroughfares.

The tuberculous retropharyngeal abscesses of cattle, being often a local tuberculosis, is amenable to surgical treatment. Lancing and antiseptic irrigations of iodoform-ether solution may cause these to heal and the tuberculosis to abort, and although this is seldom done nor is it often preferable to slaughter, the possibility of reclaiming a valuable animal thus affected is well worth knowing. After the abscess has drained and its cavity has cicatrized the proper measure to assure a cure would be ablation of the gland, but since such an operation would be difficult if not impossible the tubercular process must be guided toward a cure by good feeding and good sanitation.

Superior Cervical Abscess

The superior cervical lymph nodes lie just above the larynx related to the thyroid body. When attacked with abscess a somewhat different clinical picture is exhibited. It suggests goiter with the exceptions that the region is phlegmonic, the base is wide and the skin more tense. They are more rare than retropharyngeal and submaxillary abscesses.

Treatment. As superior cervical abscesses seldom threaten the life or seriously discomfort the patient it is always wise to prolong the local treatment until they ripen and exhibit a place where lancing can be safely practiced. When bilateral or exceptionally voluminous the pressure upon the air passages may suggest an earlier intervention. In this case lancing must be done with the same care as in retropharyngeal abscess. The skin and superficial fascia are first incised and then the perforation made by boring with a blunt hemostat. Here irrigation is not necessary as the contents can be pressed out by manipulation. The aperture is wadded to widen it and to insure subsequent drainage, and when the discharge continues a wick is inserted daily to prevent closure.

(Continued in next issue.)

Queries and Answers

The editors will reply to queries appearing here, as they are able and as opportunity permits, but they do not want, nor cannot undertake to monopolize this portion of the department. Any reader who can furnish further and better information in reply to any query is urgently requested to do so. Where the treatments advised in these replies is adopted it is hoped that those employing them will report their results whether good or bad. In all cases give the number of the query when writing anything concerning it.

QUERY No. 318—A client of mine has recently purchased an eight-year-old, pure-bred Percheron stallion that weighs a ton or more. The stallion has been serving about three mares daily for some time. The groom reported to me that of late after each service the stallion passes from one to six ounces of a bloody material. The horse is not failing in weight and this condition does not seem to cause any distress or inconvenience in any way. I have not been preent at the time mares have been served, but am told that this penile discharge is of regular occurence and is becoming more bloody in consistency and is increasing in quantity. Kindly inform me through the columns of your valuable journal how I may handle the case. S. I. G.

REPLY BY DR. J. V. LACROIX: In this case the stallion should be taken from service immediately. The exact cause of the trouble is not to be determined without a careful physical examination. Inflammations of the glands and other structures in the vicinity of the neck of the bladder are sometimes sequelæ of strangles. You should make a careful examination, per rectum, of the region of the neck of the bladder, carefully palpating the seminal vesicles and the glands of this region to determine whether or not they are supersensitive, inflamed or otherwise affected. The bladder itself should be examined by this means of palpation and likewise the ischial portion of the urethra to determine the possible existence of calculi. A good pliable metal catheter that is well lubricated should be introduced into the urethra, and by this means you may at once recognize the presence of calculi if they are lodged along the course of the urethra. Also by exercising careful attention while introducing the catheter, undue resistance against its introduction at any given point may serve to indicate the presence of urethral stricture or other diseased conditions which will diminish the lumen of the urethra. A urinalysis should be made. Needless to say, if calculi are found, they ought to be removed at once surgically, and the trouble should subside soon thereafter. In the meantime, palliatives such as repeated doses of buchu may be helpful. Your client should be advised to employ an impregnator so that the procreative energy of his stallion may be conserved.

QUERY No. 319.—Can you give me any information regarding inflammation of the sheath and penis in the bull, where the sheath and penis swell and urination becomes difficult. In cases that I have treated, it is impossible to detect calculi or other obstruction. In one case the sheath and penis sloughed off just in front of the scrotum. In every instance, the sheath fills with a watery serum in the course of about a week or ten days. I have lanced them and kept them clean with antiseptics. In about two weeks an edematous swelling occurs along the inferior abdominal region. Any suggestions you can give me on this will be appreciated.—W. A. F.

REPLY BY DR. J. V. LACROIX: As I analyze the condition that you describe, I believe the trouble is due to calculi. I should recommend that you confine the ailing subjects and palpate the penis all along its course, noting very carefully conditions along the sigmoid curvature. Failing to find calculi by this method (which is the usual result), it is well then to examine the bladder per rectum to determine its condition. If it is greatly distended with urine, you may be sure that there exists complete obstruction of the urethra somewhere along its course. In this event, the patient must be secured in stocks or by casting, and an exploratory incision made near the base of the scrotum either anterior or posterior to it. The incision should be made four or five inches in length and perforate the skin and sub-cuticular fascia. This done, grasp the penis by thrusting the fingers around it, breaking down the areolar tissue and straighten the curvature by gentle traction. Palpate carefully that portion of the penis which goes to make the upper portion of the sigmoid cur-

vature, for it is at this point that stones usually lodge. Failing to find them here, note carefully the lower portion of the curvature, and if they are not discernible at this point by palpation, you are not even then justified in assuming that no calculi exist distally thereto. In some instances calculi pass beyond the sigmoid curvature and eventually lodge in the constricted portion of the urethra at some point proximal to the urethral orifice. When calculi remain lodged for any great length of time within the urethra, there results necrosis and destruction of mucosa, and subsequent stricture with complete occlusion of the urethra is likely to occur even though calculi are removed.

In some cases where calculi have become dislodged and where an ischial opening has been made into the urethra, it is possible to inject fluids by means of a small metal catheter or tube from the meatus urinarius out through the artificial opening made through the urethra at the ischium, but not possible to inject fluids in the opposite direction or out through the meatus from the artificial ischial opening. If you find calculi in the region of the sigmoid portion of the penis, they should be removed by making an incision along the inferior portion of the penis and the urethra irrigated with a normal saline solution or a very week solution of permanganate of potash. The muscular portion of the penis is then sutured.

Where stones are not located by palpation, it is necessary to make an opening into the urethra at the ischial region in order to provide for escape of urine. You may find it difficult to cut down exactly upon the urethra at this point because of hemorrhage which may come from the vesico-prostatic artery or its branches. In one instance of this kind, we found it exceedingly difficult to introduce a catheter or even a probe into the urethra by way of the artificial urethral opening. After repeated trials, we were able to introduce a very slender probe, and following this, an ordinary metal female catheter was introduced and secured in position by means of a heavy tape suture through the skin of the wound margins. It is best, I think, in such cases to make a free ischial opening, particularly if the subject is fat and then either destroy some of the mucosa of the urethra by cauterization or with the scissors, or suture it alongside the wound margins so that the opening thus made will remain patent.

QUERY No. 320.—Would some one please advise the best line of care and treatment to pursue in a case of partial separation of the fetal membranes in the mare? This mare is carrying a live fetus.—M. L.

REPLY BY DR. E. MERILLAT: The above mentioned condition is one that veterinarians seldom diagnose, not because the membranes rarely detach, but because the condition is not suspected until abortion occurs. The causes are generally maternal and may be classed as follows: 1, traumatic; 2, pathologic; 3, infectious.

1. Any injury that will alter either or both the nerve and blood supply to the uterus, may be followed by the separation of the fetal membranes.

2. Any morbid anatomical changes that interfere with the function of the uterus will favor the detachment of the placenta. These changes, however, do not develop to any great extent during the short life of domestic animals, but are occasionally observed in old ones.

3. Under this class we may consider the abortion bacillus as the chief agent that separates the fetal membranes. However, there are other organisms that will invade the continuity of these structures and separate them.

Any detachment of membranes will disturb the development of the fetus either temporarily or permanently—temporarily when the attached portion compensates for the detached portion; permanently when there is no compensation established and the impaired development continues until the fetus is expelled.

Care and treatment should consist of anything that will conserve energy, such as individual hygiene, good ventilation, voluntary exercise (forced exercise or idleness is not conducive), well balanced rations with the proper supply of available inorganic constituents. Medication will depend upon the individual, no two cases requiring the same medicinal treatment; palliative treatment is the best.

The prognosis depends upon the amount of the detached surface and the compensation of the attached surface, and since veterinarians now can diagnose a partial separation, let us hope that it will not be long before any diagnostician will be able to tell the ratio of the attached to the detached portion and make a prognosis before closing the stable door or bidding the client good-by.

QUERY No. 321.—I should like a little information on wild sage poisoning in horses. I have been unable so far to find anything on it. I should like to know the toxic action and treatment. I was called to a case last Sunday about 6 o'clock p.m., and upon arriving about an hour later, I found the following symptoms: mare, four years old, down and would struggle but when raised up her front legs would apparently give way and she would fall again. Respiration, pulse and peristalsis normal; no abnormal sounds on auscultation, temperature 98° F. The animal was lying on her sternum like a cow and eating grass

when I arrived, and had not lost her appetite, the bowels being normal. The history I got was as follows: On Friday the animal had worked to a lister and fell but got up immediately and showed no signs of ailment until found about 2 o'clock Sunday afternoon. The animal would drink enormous quantities of water and would urinate frequently the urine being colorless or water colored. The owner said she was "saged" or poisoned on wild sage. Not being satisfied because it was now getting dark and I could not make a satisfactory examination, I administered an aloetic ball and told the owner I would return in the morning when it was light. Upon returning next day, I found no change except that the animal had struggled a few feet and eaten all the grass and wild sage she could reach. I put her on a stimulating treatment and she is slowly regaining strength, but had to be raised and supported by a sling. This sage seems to do most harm in the spring of the year and especially after a rain and on Saturday before this it snowed all day. I will appreciate anything you can give me along this line.—W. R. P.

Reply by Prof. L. H. Pammel: I can make only a few comments in regard to the alleged poisoning from sage. The common sage of the inter-mountain country is *Artemisia tridentata*. The inhalation of the dried powder causes violent sneezing. It is a well known fact that sheep eat sage in large quantities in the west, apparently without any injurious effects. Cattle, however, do not relish the plant. I think horses do not generally eat the plant. Sage has been suspected of being poisonous in Montana, but no authentic specific cases have been reported, so far as I know. Sage has been found in the crops of sage hens in great quantities and the meat of the birds tastes like sage brush as I can testify. It apparently does not injure the birds.

Absinthe which is related to sage is poisonous. The volatile oil of absinthe produces cerebral disorders, convulsions and even death. It contains the principle *absinthium*. It is interesting to know that, according to the above querist, the young plants are injurious and not the older ones. I suspect the sage referred to is one of the half dozen or more species occurring in Oklahoma. I cannot, of course refer the poisoning to any definite species without the plant.

Query No. 322.—I have a case in a Boston terrier that is a corker. She is nine years old and eight years ago she had a litter of pups and seven years ago another litter, but none since the last mentioned litter. She was never spayed. From the time she had her last littter, she comes around regularly and at the time she should have her pups, her mammae became swollen and for three months she will have a full lactation period, being regularly milked by her attendant. About the latter part of the lactation period, she has anywhere from one to three abscesses, and they affect either the mammary glands or approximate regions. Aside from spaying her, what would be advisable to do?—H. L. W.

Reply by Dr. Arthur Trickett: The fact that this bitch has had no puppies since she was two years old would, I think, give one the idea that she had become sterile. The period of estrum coming regularly and later followed by the usual periods of lactation is not out of the ordinary in dogs. The length of the period of lactation and the abscesses, in my opinion, are due to the frequent manipulation of the parts by the attendant. I believe if a cathartic was given, followed by local application to the udder of camphorated oil or other similiar agents, this extended period of lactation would not occur.

I should think spaying of this animal would completely control all of the symptoms described.

Query No. 323.—On page 62 of Kaupp's "Poultry Diseases," I notice that he recommends giving two-grain doses of santonin to fowls infested by the Ascaris inflexa (the round worm). I am wondering if there is any likelihood of this large dose occasioning harm. The dose often given in the human is one-sixth grain, and I am wondering if the short intestinal tract of the fowl is responsible for this animal's tolerating a two-grain dose without untoward results. Any information that you may give me on this subject will be appreciated.—L. W.

Reply by Dr. B. F. Kaupp: In series after series of experiments extending over a period of more than fifteen years we have worked out the dosage on about fifty drugs for the adult fowl.

We find that birds behave rather differently toward drugs than do mammalia. This is true not only of santonin but also of many other drugs. These dosages of the various useful drugs for fowls are given in the second edition of "Diseases of Poultry" which is now in press.

We find that the fowl is not of mammalian origin but has come from the reptilian line in its developmental stages.

There are individual variations in the action of different birds to the same drug. We find that in order to attain the best results with santonin it is necessary to give doses of about two grains.

The three following experiments which have just been conducted affirm many other similar experiments that we have performed heretofore.

Case No. 1—Partridge Plymouth Rock

cockerel, 4 months old, weight 2.6 pounds. Given 2 grains crystal santonin in gelatin capsule July 22nd. At 12 p. m., July 24th, bird is in perfect health, having suffered no ill effects from the santonin.

Case No. 2—Barred Plymouth Rock cockerel, 5 months old, weight 1.8 pounds. Given 2 grains crystal santonin in gelatin capsule, July 22nd at 12 p. m. At 12 p. m., July 24th, bird is in good physical condition, having suffered no bad effects from the santonin.

Case No. 3—Mottled Houdan hen four years old and somewhat emaciated. Given 2 grains crystal santonin in gelatin capsule at 12 m., July 22nd. At 12 m., July 24th, bird is in good physical condition, having suffered no ill effects from the large dose of santonin.

There is another treatment that is effective in cases of infestation by the Ascaris inflexa and that is the tobacco treatment. Place one pound finely clipped tobacco leaves in sufficient water to cover and allow to steep for two hours. Then mix this material, clipped leaves and water, in sufficient bran or other mash for 100 adult hens. Repeat in seven days. It will destroy both round and tape worms.

WHAT OF THE FUTURE?

(*Continued from page* 682)

In urging young men to "first get the facts," W. C. Redfield, Secretary of Commerce, once said, "The relation men hold to truth, their respect for facts, their use of facts, largely determines their place and power in life. We make progress in the business world not necessarily by research for facts, but at least by outreach for them, and by respectful treatment of them when they are found. The amount of success will depend a good deal upon how far your vision goes in seeing the facts that surround you, and on the extent to which your practice goes in using those facts."

If, therefore, the veterinarian is to assist in hastening on the more prosperous era, in which he is to participate, he must not only be the physician, but the sanitary adviser and hygienist. He must be the instructor and educator of the farmer in all that pertains to successful live stock husbandry, and he should never lose an opportunity of showing the "quality of his wares." Or in other words, the door of his storehouse of information that would benefit his client should be thrown open at all times, and not merely from the standpoint of therapeutics, in the case of sick animals. In short, if the veterinarian, through his wider knowledge of conditions pertaining to live stock, is able to aid in the general agricultural uplift, he cannot but share in the ultimate success.

We believe, therefore, that, with the public mind at present aroused, as probably never before, to the immense importance of the live stock industry of the country, an unprecedented opportunity has arisen that should be taken full advantage of by the profession to make itself felt by lending its aid in the general development that the future may have in store, and in the success of which it is bound to be a participant.

Our ideas may, perhaps, savor a little too much of the optimistic; however, basing them upon the few points mentioned, and others which we may have overlooked, we cannot see why, if prosperity is likely to be general throughout the country, and which must, necessarily, include the live stock industry, the prospects for the veterinarian ought not, also, to be bright.

However, in order to succeed, it will, on his part, require alertness, special preparation, an abandonment of old ruts and a greater breadth of viewpoint, if he is to fully meet the demands that are likely to be made upon him in a professional way. But to the man who will prepare himself to meet these increased demands, it is our conviction that the future will have in store greater things for him than hitherto existed in this country. But, to repeat a part of the quotation already given, "The amount of success will depend a great deal upon how far your vision goes in seeing the facts that surround you, and on the extent to which your practice goes in using those facts."

In every affair consider what precedes and what follows, and then undertake it.—Epictetus.

Nothing great was ever achieved without enthusiasm.—Emerson.

Department of Live Stock Poisoning

By L. H. PAMMEL, Ph. D., Ames, Iowa
Professor of Botany, Iowa State College

It is the intention of the writer to use these columns to discuss the subject of poisonous plants. I shall, therefore, be glad to have readers of the American Journal of Veterinary Medicine send specimens of alleged poisonous plants to me. The queries will be given prompt attention.—L. H. P.

Probably Horsetail Poisoning

DR. S. NICHOLS, of Ravenna, Neb., sends an interesting lot of plants, some of which were suspected of being poisonous. His letter follows:

"I am sending you, under separate cover, numerous samples of weeds found in a pasture here, where I am having trouble with what seems to be some form of poisoning in horses. I am also sending some samples of what seems to me to be Equisetum, and which I found in the hay. I am sending some green samples of what I think is Equisetum, which grows on the hay flats here.

"I am numbering each specimen and would appreciate an opinion from you as to whether any of these are poisonous.

"The following are symptoms and history of the two cases I have on this farm. On June 12th I was called to see case No. 1, a gelding five years old, fed hay and corn, worked during the day and turned out at night. This case was taken suddenly sick in the field, became delirious and violent; there were trembling and twitching of muscles. In one hour he was apparently well, would eat and drink. Temperature 101.5°F, pulse 60, but this became nearly normal shortly after the paroxysm. These paroxysms came on every two to six hours. When they were most severe the case had the appearance of cerebrospinal meningitis. During the attacks the respiratory rate is greatly increased and it is labored, but respiration is normal in a short time after the attack has subsided. The pupils are contracted, but respond readily to extensive light or darkness, bowel movements normal.

"Case No. 2. I was called to this case on June 14th. This animal showed slight muscular twitching and inability to masticate hay or grain, but could drink water. When I arrived his mouth was full of corn, but he was unable to work it back to swallow, temperature 99°F, respiration normal. Ten other horses have been in the same pasture, but only two others have been feeding upon the same hay as the sick ones.

"Friedberger and Frohner describe poisoning by Equisetum as causing paralysis and coma. So far there has been no coma, but it may develop later. I just returned from seeing these patients today and they are not improved any.

"I wish to add that these cases show difficuhy in seeing. Case No. 1 has absolutely no vision in his right eye and case No. 2 shows paralysis of the lower lip.

"Lobelin sulphate seemed to influence the spasms in case No. 1, but only for a short time. Any information you can give me will be greatly appreciated."

The plants I identify are as follows: No. 1 is a species of Callirhoe and at one time was looked upon with suspicion in connection with loco poisoning. It is not, however, generally regarded as a poisonous plant. No. 5 appears to me to be the same thing before coming into flower. No. 2 is one of the wild mustards (Nasturtium). I do not think this is in any way responsible for the disease. Some of the mustards produce sinapism, but I hardly think this species is sufficiently common to cause such trouble. No. 4 is one of the wild sages or wormwood (*Artemisia*), but the material is not sufficient to identify the species. I do not think it can cause the symptoms you describe. No. 6 is spiderwort (*Tradescantia reflexa*). This is a common plant everywhere in Iowa and parts of Nebraska and the northern Mississippi valley. I do not think it is

the cause of any trouble, at least, I do not recall that any cases of poisoning have been reported. No. 3 is a native plantain (*Plantago Purshii*). I do not think this is an injurious plant, at least it has never been so reported. No. 7 and No. 8 are horsetails (*Equisetum robustum*). These are well known as poisonous plants. The symptoms you describe are not quite those usually given for the disease. The symptoms occurring are given as follows by Professor Jones and Dr. Rich:

"The first evidence of the trouble is more or less unthriftiness, the horse appearing thin and the muscles wasted. In from two to five weeks, according to the age of the horse and the manner of feeding, the animal begins to lose control of its muscles, sways and staggers like a drunken man, although its eyes look bright, it eats well and may even try to caper and play. After muscular symptoms become pronounced many cases refuse to lie down, standing until thrown down by disorderly muscular contraction. If it continues to eat the plant the horse in any case soon loses power to stand and goes down, after which it becomes very nervous and struggles violently to get up, the legs become more or less rigid and at times all the muscles of the body seem convulsed. Even in this condition one well nursed patient lived two weeks. The horses are generally willing to eat, although unable to rise, but become sore and tired from struggling, finally dying from exhaustion. Life is much prolonged by turning from side to side three or four times in twenty-four hours; thus preventing gravitation congestion of the lungs and kidneys. The pulse becomes slow until toward the end when it is rapid and weak. Temperature is below normal until the animal goes down, after which some fever develops in consequence of the nervous excitement and violent struggling. The extremities are usually cold, and in the winter horses suffering from Equisetum poisoning suffer severely from the cold, presumedly because of diminished oxidation and consequent low body temperature. The visible lining membranes of mouth, nose, eye, etc., become pale.

"Conditions Influencing the Effect of the Poison.—Age of the horses—young animals develop symptoms much more quickly and succumb to the Equisetum poisoning sooner than older ones. In one case under observation a mare eating Equisetum hay did not show symptoms until after four weeks, while her colt by her side developed typical symptoms of horsetail poisoning and died in ten days. Nine out of fourteen horses on one farm, all fed alike upon good hay, were bedded with swale hay containing large quantities of this weed. They ate the bedding freely and within three weeks all nine showed symptoms of poisoning, the remaining five bedded with straw kept perfectly well. The youngest, a three-year-old, was down and died a few days later. The oldest, an old brood mare, showed but slight symptoms, while the other seven, of intermediate ages, all staggered and reeled, although they recovered."

Young Chickens Dying From Feeding Screenings

Mr. A. O. Fobes, of Volga, Iowa, sent a sample of wheat screenings to the experiment station containing among other impurities a large amount of bunt of wheat and corn cockle. The corn cockle, according to the analysis of Miss King, amounts to .15 per cent. The grains of bunt were numerous. Mr. Fobes writes as follows: "There has been much complaint in Iowa and elsewhere from poisoning due to wheat screenings containing corn cockle." The corn cockle contains a considerable amount of githagin, and other injurious substances. The effects of poisoning are as follows:

The more prominent symptoms as recorded by Friedberger and Frohner are, briefly, colic, vomiting, slavering, paralysis, stupor, hyperemia of brain and spinal cord.

Goat's Beard

Dr. E. C. Sheumaker of Mount Ayr, Iowa, sends the following letter and a specimen of goat's beard (*Tragopogon pratensis*):

"Under separate cover by parcels post we are sending you a small package containing a new species of weed which Mr. D. A. Vaughn brought into the office. We would be glad to be informed if this is a noxious weed, and any information you can give us will be appreciated."

This is a noxious perennial weed related to the vegetable oyster plant. I have never heard of its being poisonous. It contains a considerable quantity of milky juice which may act like an opiate.

More Cases of Poisoning From Oak

Dr. L. W. Kitchen, of Post, Texas, writes as follows:

"I am sending you, under separate cover, some sprigs of 'shinny' oak. Hundreds of cattle die here every spring from eating this. Should you have anything new on this, I would be glad to see it in the JOURNAL."

This appears to be the *Quercus brevilola*, although the identification is not certain, because the acorns are not present.

Dr. L. U. Brown, of Ardmore, Okla., writes to the AMERICAN JOURNAL OF VETERINARY MEDICINE as follows:

"We have lost several cattle here from tannic acid poisoning as there are lots of shin oaks, black jack, etc., in this vicinity."

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the thanks of the editor, the approval of the veterinary profession and the lasting gratitude of those who are aided by your suggestions.

Atony and Impaction of the Rumen in Cows

IN a recent number of the AMERICAN JOURNAL OF VETERINARY MEDICINE, there was a query in regard to the treatment of impaction of the rumen in cows. The reply again emphasizes the fact that the rank and file of the profession continue to use the various saline purgatives or oil for the treatment of these conditions, and if this proves inefficient, they are followed, as a last resort, either by rumenotomy or the use of the rumenotomy outfit.

It is true that many practitioners have largely discarded the use of saline purgatives and oils in their cattle practice. Yet in many localities about the only treatments given, even by the veterianarian, for the so-called impaction of the rumen are the various saline preparations and oils. There is little written in our veterinary journals about this very important ailment of our most valuable domestic animal. With the view of stimulating discussion of this topic and to give briefly the treatment we are using, this somewhat rambling article has been written.

As we know, the cow in health swallows her food with very little mastication, and it passes into the rumen. At her leisure she regurgitates it and further masticates this food. After remastication the food is swallowed again when it passes mainly into the third and fourth compartments of the stomach. Liquids swallowed pass for the most part into the second, third and fourth compartments, a very small portion of the liquids swallowed passing directly into the rumen. Consequently drenches given are more likely to pass into the other compartments of the stomach than into the rumen.

The normal cow's rumen is continually undergoing a kind of churning movement caused by the contraction and relaxation of the muscular pillars found in its walls. These movements can be distinctly seen and felt in the left flank.

In a dairying community, such as the one in which we are located, about ninety per cent. of the digestive disturbances in cattle originate in the rumen. This condition is usually described as an impaction of the rumen or sometimes spoken of as catarrh of the paunch. After considerable study and observation, we believe that the condition is more of an atony or paresis of the rumen.

When the muscular pillars of the walls of the organ entirely cease their periodic contractions and relaxations, or at least, if the contractions become very weak and irregular, atony results. As a consequence the ingesta becomes firmly molded to the form of the paunch, and this makes possible a diagnosis of impaction when an examination is made. The impaction is almost entirely due to a lack of the normal movement of the rumen and will nearly always correct itself as soon as the physiologic function of the paunch returns. I believe that it is practically impossible by any medication to cause a direct passage of any considerable amount of paunch contents from the rumen to the third and fourth compartments of the stomach. By regurgitation, rumination and deglutition only, is this accomplished. In these cases what really occurs is a cessation of rumination, consequently a lessening of the amount of bowel and second, third and fourth stomach content, leading to a decrease in the bowel evacuation. Therefore, we are called upon to administer a physic, as the "bowels are not moving," or more frequently the owner has already given from one to ten pounds of "salts" before calling the veterinarian. A cow in this

condition has usually almost entirely ceased to eat, drinking very little, if any, and rumination is entirely suspended. I contend that in a case of so-called impaction it is very detrimental to the cow to administer a dose of saline purgative or oil.

We know that salts or oils act only locally—salts by causing an outpouring of liquids, and oils largely by lubrication. When the cow is given a voluminous drench, the major portion goes, not into the paunch, but into the other compartments of the stomach and later into the bowels. This flushes out the bowels leaving the rumen in the same condition as before, except that valuable time has been lost, and some of the secretions that would have normally gone to the rumen have been diverted. A purge in such instances also weakens the system when a stimulation is needed.

If the preceding statements are true, it is evident that what is needed in suspended function of the rumen is a substance that will stimulate the contractions of the paunch and also encourage the animal to resume rumination. Any agent that is given for such a purpose must be of a nature that it acts through the general system. It has been found that we have such a substance in the combination of barium cholrid and antimony and potassium tartrate. Barium chlorid seems to have a selective action on the muculature of the rumen, and causes contractions of the muscular pillars, while tartar emetic exercises an emetic action and hastens the act of rumination. Barium chlorid used by itself will often restore, partially at least, the paunch movements but does not restore rapidly enough the act of regurgitation, which is a modified emesis.

We have been using this treatment for eight or nine years now and feel certain that if it were adopted more generally, there would be fewer fatalities and less rumenotomies performed.

For an average sized cow of about eight hundred pounds weight, we would recommend about fifteen grains of barium chlorid and the same amount of tartar emetic given as a dose every six to nine hours. Usually four to six doses are sufficient, but we have in a few complicated cases used it for a considerable time with no bad results. Our method has been to dispense it in powders, each dose in a powder by itself. One of these powders is given in eight ounces of water (shaken well). Barium chlorid is soluble; tartar emetic is given in suspension. Recently we have had this combination made into tablets as it is much more convenient to handle and dispense.

It is our belief that saline purgatives and oils are absolutely contraindicated in so-called impaction of the paunch and that every dose of these given lessens the chances of a good recovery. To those who have never used barium chlorid and tartar emetic, I would suggest that the next time they have a case that has about "cornered the market" in salts and looks as if it is hopeless, they try a few doses of this combination, and if the cow does not get well, be sure to ho'd a post mortem examination. I believe this treatment will cure nearly all curable cases. Very often in practice, we find on post mortem examination that the condition is caused by a foreign body (nail, wire, etc.), not involving the heart, but causing stasis of the rumen by inflammation, adhesions, etc.

A grade Holstein cow, five years old, owned by a foreigner, had been treated for more than a week by another veterinarian who used the ordinary line of salts and oil. My associate was called to see this case and found the subject in fair strength, the rumen badly impacted, absolutely no paunch movement and no desire for food and drink. The cow was brought to the hospital with the intention of operating. However, as it was getting late and the cow seemed in fair physical condition, we decided to wait until the next day to operate; consequently, she was given two doses of barium chlorid and tartar emetic that night. The next morning the cow seemed no worse; in fact, she was somewhat brighter, and we could detect weak paunch movements. The treatment was continued, and in two days the cow was ruminating and made a very rapid recovery. This case in all did not have over eight doses of this treatment and was given no other medicine, except a couple of doses of nux vomica and aromatic spirits of ammonia.

Alliance, Ohio. FRANK L. CARR, V. S.

FRACTURE OF THE TIBIA IN A COW

I recently treated a case of simple fracture of the lower third of the tibia in a three-year-old cow, wherein results were, I think, very satisfactory. After having been called to see this case, I made quite a careful examination of the subject, and as the fracture had occurred so near the hock joint, I thought it was a hopeless case, but conditions were such that I felt I ought to do the best I could in the way of treatment. Consequently the fracture was reduced in the usual manner in such cases, and the parts supported in position by means of a splint composed of wood taken from berry crates.

The leg was covered with a sufficient layer of cotton to pad and protect the parts, the splints applied on each side of the leg, and these held in position by means of bandages and a liberal amount of cold starch. The

cow, which by the way was nursing a young calf, was given the run of a small pasture.

A complete recovery resulted in this case in about six weeks. The splints were left in position about four and one-half weeks.

G. F. JUNGERMAN, D. V. S.

Hiawatha, Kans.

INGESTION OF PLACENTAL MEMBRANES IN A COW

A cow having a calf that was three weeks old was reported to be passing "bloody looking strings," which were, as the owner said, about the size of a man's finger The cow had done very well after calving up until the time I was called, which was three weeks after parturition. Rumination was suspended, but upon examination I could find no trace of placental membranes.

I gave an enema, using warm water, and finally shreds of bloody tissue showed up. The cow was very thin in flesh, but not so thin as I have seen in other cases this year. I noticed that respiration was labored. I decided that there was some kind of stomach trouble. I gave a dose of medicine and left two more to be given. I instructed my client to call me up the next day if the cow was living, and that if she died to be sure to cut her open and determine if possible what was wrong.

The cow died and the owner followed my instructions. He found fetal membranes within the rumen and reticulum, which seemed to be, as he said, in about the same condition as when they had been swallowed, with the exception that portions had sloughed off and passed out through the intestines.

Did this cow die from the ingestion of fetal membranes and resulting intoxication or from obstruction?

Chester, S. C. J. E. CORNWELL, D. V. S.

CESAREAN SECTION IN A COW—RECOVERY

I was recently called by a client to attend a case of dystocia in a cow. The owner with the neighbors had attempted to effect delivery, but they were not successful. I made an examination and decided that I could not effect delivery, either. Consequently, I told the owner that the only chance lay in performing cesarean section and that the cow might die as a result of the operation because the fetus had been dead for nearly two days. Realizing that the cow would be lost even though the operation were not attempted, the owner told me to do as I liked.

I gave a hypodermic injection of H-M-C, washed the region of the flank with a solution of Kreso and shaved off an area in the flank three inches in width and about sixteen or eighteen inches long. This was painted with tincture of iodin, and an incision was made through the abdominal wall and through the uterus. The calf was removed and found to be so large that we decided to weigh it. Without both front legs (they had been amputated at the knees previously) the fetus weighed 91 pounds.

The cow made a good recovery, unlike some I have cared for wherein the operation was a success but the patient died.

Chester, S. C. J. E. CORNWELL, D. V. S.

FRACTURE OF THE SUPRAORBITAL ARCH IN A MULE

A mule appeared on the morning of June 1st with a badly swollen eye. There were signs of a bruise about three inches above the eye where a small patch of hair was missing. On June 2nd the swelling had become worse although a cold water pack had been kept over the region. The conjunctiva was injected and greatly swollen, and the

membrana nictitans protruded up and back over the corneal portion of the eye so far as to almost cover it. The cornea was cloudy. The region about the eye was swollen, tense and feverish.

I applied a fomentation consisting of a 10 per cent solution of Turkish oil. I flushed out the conjunctival sac with zinc sulphate solution (three grains to an ounce of water) adding fluid extract of belladonna (one ounce to the pint).

On June 3rd the swelling increased, the membrana nictitans and conjunctiva protruding between the eyelids. I examined the bruised spot above the eye carefully and decided to open it. I found about two

ounces of pus and a fractured supraorbital arch with a piece of loose sequestrum, which was removed. The wound was cleansed with sodium chlorid solution followed with the application of zinc chlorid (three grains) and hydrochloric acid (ten drops to the ounce of water). The fomentations were continued; an eye lotion was injected three times daily; and a zinc chlorid solution was injected twice daily.

On June 7th the swelling had almost disappeared and the eye was open, but the cornea was still cloudy. I removed the fomentation packs and put on a sunshade to protect the eye from light during the day, removing it at night.

The eye lotion and zinc chlorid injections were continued. On June 21st the

eye was open and the cornea clear. The wound above the eye was nearly closed and was discharging only a few drops of thin pus. On June 30th the wound had closed except for a small skin wound.

J. H. GOULD, *Veterinarian,*
Camp Stottenburg.
Philippine Islands. 2nd Field Artillery.

WAR HORSES

All-unoffending, unsuspecting, led;
They come—patient, resistless, dumb—
To swell the heaps of nameless dead.
—Ever Holmes.

FROM "SOMEWHERE IN FRANCE"

Many thanks for the two copies of the AMERICAN JOURNAL OF VETERINARY MEDICINE received today. I am a graduate of the 1915 class of the Ontario Veterinary College and have been in active service ever since in Egypt, France and Belgium. It has been a fine experience in nearly every known branch of disease, but I shall be quite glad when we have finally licked the Boche and I can return across the pond.

If I were asked what is the greatest point I have learned during the war, I should say —how much one can accomplish without drugs or medicine at all. When I left college, I had the idea (I suppose like many another) that there was a cure for everything, if only one hit on the right thing, and the right dose. The amount of drugs carried by an army veterinarian is always very limited, especially in variety, which at times runs out altogether. However, I find by experience that with a bit of good nursing and general cleanliness, you can obtain just as good results, as you would if you had Parke Davis' plant at your disposal.

D. V. REED, Capt. A. V. C.
O. C. 42 Mobile Vet. Section, B. E. F., France.

PROTEIN THERAPY

In regard to the article on "Protein Therapy," by Dr. F. B. Hadley, which appeared in the August number of the JOURNAL, let me say that I was greatly interested.

Several years ago the same theory presented itself to me, and I decided to follow it up and try and work it out if possible. My first idea was gained from the result of using hog cholera serum on sick or sickly hogs. In some of these cases the stimulating effect of the serum caused the animals to make phenomenal gains. My original idea was to produce a serum similar to an antitoxin by the injection of proteids for instance (egg albumen dissolved in saline solution) directly into the blood. Knowing that most antigens are of protein origin (particularly in germs) I resolved that the formation of antibodies would follow the injection of this egg-albumen antigen into the blood.

This serum I proposed to try on diseases of unknown or undiscovered origin, such as rheumatism, etc. At the time of the exploitation of this theory by myself and up to the present time, I was unaware of any extensive research on this subject. On account of inadequate means of carrying on my experimentation, along this line and realizing the size of the task before me, I decided to drop the idea, since I had no kind of assurance that it would succeed. I was further discouraged by being foolish enough to let myself be ridiculed by a physician to whom I un-

folded my theory. He was an older head than I.

Thanks for the article. Much credit is due the writer. I firmly believe that protein therapy will revolutionize the treatment of some of our obscure diseases. I intend to try out protein therapy in private practice as well as I can from now on.

Mt. Sterling, Ia. C. F. NEIS, D. V. M.

THE USE OF SILK LIGATURES AS BURIED SUTURES

In an article entitled, The Surgery of Amputation Stumps, by G. M. Huggins, F. R. C. S., England, wherein his remarks are based upon the handling of 2,000 consecutive cases, he says in part: "Sinuses in stumps are due to (1) silk ligatures, (2) necrosis of bone, (3) foreign matter, such as metal, or (4) long septic tracts in scar-tissue which are unable to close from imperfect drainage and low vitality.

"When silk is the cause of a sinus there are often several pieces. In one case seventeen silk ligatures were discharged from a thigh stump in the course of three months. Four or five is the usual number, and a great deal of harm may be done to a stump by exploring for silk. Silk should never be used for ligatures in operating on amputation stumps, for it is the cause of 40 per cent of the sinuses I treat, and causes prolonged convalescence and needless suffering."

For a time we experimented in the use of silk of exceedingly small diameter for joining the peritoneum and abdominal muscles of bitches in spaying. Such sutures were buried and the skin was carefully joined so as to get primary union of the wound. In some twenty cases thus treated, abscesses resulted in each instance. The skin would unite perfectly, but in from several days to two weeks, an abscess would form and in a few days pus would escape spontaneously if surgical drainage was not provided. In one instance when a very vigorous Boston terrier was so treated, attention was called to a sinus from which a seropurulent material issued, nearly four months after operation. In this case an incision was made in the skin and remaining portions of the fine silk thread were removed, whereupon recovery promptly followed. J. V. L.

When you know a thing, to hold that you know it; and when you do not know a thing, to allow that you do not know it: this is knowledge—Confucius.

No man can tell what the future may bring forth, and small opportunities are often the beginning of great enterprises.—Demosthenes.

TUBERCULOSIS OF THE HEAD IN A COW

A three-year-old cow was down and unable to rise for three weeks. The owners were feeding her from three to five gallons of fresh milk every day with hopes that the cow would recover, and finally, tiring of waiting for improvement that did not occur, they called me in to see her.

Here is what I found: History—cow down for three weeks, paralyzed. Symptoms: everything normal except that she was paralyzed and could not get up. Diagnosis: something wrong with the spinal cord? Prognosis: unfavorable. Course taken: animal was killed. Postmortem lesions: thoracic organs normal, abdominal organs normal, pelvic organs normal. Consequently I decided to cut the head

Cross section of head through parietal bones from the back. White spots are tubercles.

off at the occipito-atloid articulation. As I was cutting through the spinal cord here I noticed a small yellow caseous mass (a tubercle). Having completely removed the head, I looked for more lesions in the neck, though I failed to find any. I then cut into the head to ascertain if more lesions similar to the one seen could be found; so I cut the head in cross section at the center of the parietal and frontal bones, just in front of the horns as

shown in the illustration and I found a tuberculous mass involving the bones of the head. The meninges of the brain were tuberculous (miliary) on the outer surface only; the brain surface was clear.

Points of interest were, first, the yellow mass first cut was a tubercle pressing on the spinal cord and causing the paralysis; second, the peculiar position this animal held its head indicated that there was pressure at some place along the course of the upper portion of the spinal cord.

DANIEL MATTROCCE, D. V. M.
Merced, Cal.

BAMBOO PUNCTURE WOUND IN THE AXILLARY REGION OF A HORSE

A bamboo puncture above the right elbow, as shown by the accompanying illustration, caused considerable irritation and great swelling, the animal having very little use of the leg. I applied a ten per cent solution of Turkish oil as a bath or fomentation to the swollen parts for one-half hour

at a time, three times daily. A fifty per cent solution of Turkish oil was injected into the wound. The swelling diminished greatly in two days and subsided completely in a week.

I treated the puncture wound with a ten per cent solution of Turkish oil subsequent to the first dressing. The wound closed from the bottom, leaving only the skin laceration unhealed by the twenty-third day. I then dispensed with the apron that had been used to keep away the flies, painted the wound with a fifteen per cent solution of potassium permanganate twice daily and returned the animal for duty.

J. H. GOULD, *Veterinarian*,
Camp Stottenburg,
Philippine Islands. 2nd Field Artillery.

Comment: Puncture wounds of all kinds in the region of the elbow often constitute a condition wherein fatal results follow infection. The prompt institution of thorough means for disinfection in these cases together with proper after care, is all important. The great danger of infection of the brachial lymph glands and subsequent generalization of such infection is to be feared. The injection of any considerable quantity of antiseptic solution (aqueous) is to be avoided in such cases.—Eds.

REMOVAL OF RETAINED SECUNDINES BY THE HYDRO METHOD

Since Dr. R. R. Shaw made known his method of removing placental membranes in domestic animals, I have been on the watch for articles from different practitioners to learn of their successes or failures in employing this method. I think it one of the most wonderful advances in the science of obstetrics. Here are reports of two cases so treated:

On the twenty-eighth of May, I was called to see a valuable five year old mare that had had some difficulty in giving berth to her first colt, but by the assistance of the owner, the colt had been delivered when I arrived.

After treating the colt by my usual method —disinfecting and ligating of the umbilical vessels—I turned my attention to the mare. I soon found by examination that the placental membranes were very closely adherent and that the vessels were prominent. Here was a good chance to try the hydro-method. I asked my client to have two or three gallons of water boiled and a normal salt solution was made and injected into the vessels. I opened one of the largest of these as close to the vulva as possible, using a small cannula attached to the end of a bulk syringe. It worked perfectly and I succeeded in injecting a gallon of the solution into the vessels. They were then ligated and cut as close to the vagina as possible, as were also the protruding membranes.

The vagina and vulva were washed with an antiseptic solution of boric acid. This with removal of protruding membranes was done to preclude the possibility of vaginal infection. As the mare was somewhat exhausted, camphorated oil was given. The owner was instructed to let me know how she progressed before his bed-time, as I thought the mare might have after-pains and strain unnecessarily. The injection of the placenta was done about four o'clock p. m., and the owner telephoned me about eleven

that evening and said that the mare was all right and that the membranes had been delivered. I was so surprised that I almost doubted the man's word. The mare got along fine without any further attention.

Another case, in a cow, was cared for in the same manner as was the mare, and results were about the same, except that there was a longer period before the membranes were expelled

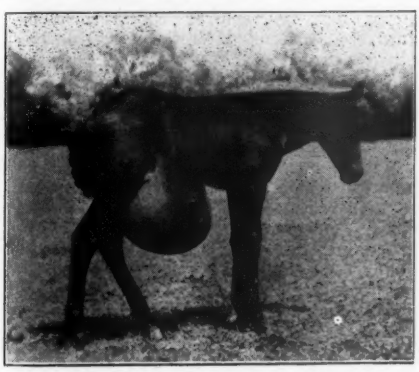
Now comes the question which interests me the most. Will a normal saline solution serve a better purpose in these cases than will other fluids? It has been said that any fluid that is not harmful to the parts will do quite as well as the saline solution.

It is my opinion that in addition to the pressure occasioned by the saline solution, there results beneficial effect from osmosis and likewise there occurs uterine stimulation which assists in expelling the membranes.

C. T. SWISHER, B. S., D. V. M.
Spencer, S. Dak.

A PEROCORMIC FOAL

The accompanying illustration is of a colt that I was called to see shortly after its birth. Because of the size of the displaced visceral mass, I advised destruction of the subject. The owner, however, was loath to do this, and the colt was allowed to live.



In this case there seemed to be a lack of abdominal musculature over the area which surrounded the ectopic viscera. The colt had no difficulty in defecating or urinating and appeared to suffer no distress from the condition until a day or two before this photograph was taken.

A report ten days after the time the photograph was taken was to the effect that the colt was in a fairly good condition, bright and playful. No radical treatment was advised.

Frederick, Md. R. V. SMITH.

OPERATION FOR SCROTAL HERNIA IN SWINE*

In describing an operation for scrotal hernia of the hog, it is interesting and necessary to take into consideration the anatomy of the structures in the regions involved, as some important comparative differences in this respect exist between the hog and the horse.

The abdominal tunics of the hog are the same as in the horse, except in size and comparative development. The structures which form the inguinal canal in the hog have the same names and are composed of the same kind of tissue as in the horse, but in the hog there exists a subcutaneous canal which extends from the external inguinal ring backward and slightly downward to the scrotum, which is located just below the anus. Through this canal the tunica vaginalis and testicle gain entrance to the scrotum during the migration of the testicle in fetal life. Therefore, the tunica vaginalis and testicular cord are proportionally longer in the hog than in the horse.

The anatomy of the tunica vaginalis of the hog is important, for while it is the main structure relied upon to support the intestine after scrotal hernia operation has been performed on the horse, it cannot be relied upon for such support in the hog.

The tunica vaginalis in the hog is a long fibro-serous sac, composed of subperitoneal fascia and peritoneum, extending from the internal inguinal ring to the scrotum (some include this tunic as a part of the scrotum). In the hog it is very thin at the point of reflecting at the internal inguinal ring (where the tunica vaginalis forms the vaginal ring) and in the inguinal canal, but is thick in the scrotal part, where it is strengthened by fibrous tissue derived from the transversalis fascia. Therefore, on account of its thinness within the canal, the tunica vaginalis is easily torn at that place, but quite strong and not easily torn around the testicle. Because the tunica vaginalis is easily torn within the inguinal canal, the *modus operandi* in scrotal hernia on the horse is not always a satisfactory one on the hog.

If the tunica vaginalis tears, the laceration usually happens at the time or soon after the operation has been performed (while the hog is being released, as he usually struggles at that time). If laceration takes place, the intestine may find its way to the exterior, and cause death, especially if the intestine has come in contact with the filth of the pen.

On account of the thinness of the tunica vaginalis within the inguinal canal, it is not unusual to find a previous vaginal laceration, through which the intestine has passed

*Read before the Illinois Veterinary Medical Association, July 19, 1917, at National Stock Yards, Ill.

into the canal. In such cases the intestine usually descends into the scrotum, causing a condition known as extra-vaginal hernia. In extra-vaginal herniae the tunica vaginalis cannot be depended upon for intestinal support at the time of the operation, on account of the previous laceration, therefore, serious results frequently follow operation in these cases.

After meeting with such conditions as above mentioned, followed with some unsatisfactory results, a change in the *modus operandi* for scrotal hernia of the hog, both vaginal and extra-vaginal, was made with exceedingly good results.

In describing the operation it is necessary to say something about preparation, instruments, dressing and restraint.

No extra preparation of the hog prior to the time of operation is necessary, although the operation is more easily performed if the hog is gaunt.

The instruments necessary are one scalpel (or castration knife), one pair of dressing forceps, one large curved needle about four or five inches long.

For dressing, a piece of gauze bandage four feet long (use what is necessary) and four inches wide is preferable, and about two feet of surgical tape.

For restraint, a small animal operating table, or a rack with shackles, such as is used in anti-hog cholera serum plants, is desirable, but as they are not usually to be had for such an operation, a satisfactory restraint of the hog may be had by using two cotton window cord ropes about three feet long, tying the ends of each rope to be looped and half-hitched above the hock. The hog may then be suspended head downward by placing the ropes over nails driven into the side of the barn, one for each rope.

As soon as the hog has been restrained by some method convenient for the operation, the skin over the scrotum, between the thighs, inguinal region and posterior part of the abdomen should be cleansed, using a disinfectant solution. Then with the fingers, pressure should be brought to bear over the hernial mass, forcing its contents into the abdominal cavity. In some cases, to prevent the hernial contents returning to the scrotum, it is necessary for an assistant to keep pressure over the external inguinal ring during the operation.

The operator, knowing the hernial contents have been replaced, makes an incision as in ordinary castration, and removes the testicles by pulling the cord until it breaks. The operator, holding the scrotum and tunica vaginalis on each side of the incisions, then looks into the cavity of the tunica vaginalis to make sure that it contains nothing. Then a piece of gauze bandage moistened in some antiseptic (preferably tincture of iodin) is placed within the tunica vaginalis as far as the external inguinal ring. Two cross stitches should be taken in the inguinal region over the external inguinal ring. The needle should pass through the abdominal wall, around the packing, into the inguinal ligament and return to the surface on the opposite side of the packing from which it entered. The sutures when tied, secure the packing over the external inguinal ring until it is removed. The incision into the scrotum should also be sutured to protect the scrotal wound from dirt, and one may more thoroughly secure the packing by running one stitch through the latter.

The object of the packing, saturated with tincture of iodin, is to cause inflammation of the structures that form the inguinal canal, tunica vaginalis and the structures in the inguinal region, which will close the inguinal canal. In packing the subcutaneous canal usually the tunica vaginalis is forced forward far enough to partly fill the inguinal canal, and as it is composed principally of serous membranes, the inflammation caused by the operation and the dressings causes it to adhere. Such procedure occludes the canal permanently, whether the scrotal hernia is of the vaginal or extra-vaginal type.

The hog should be housed in a clean place until the wound has healed. The packing may be removed within thirty-six to forty-eight hours after the operation has been performed.

SAMUEL L. STEWART, D. V. S.
Kansas City.

Comments: The foregoing article sets forth in a lucid manner the technic of an operation which, we infer, is recommended for the treatment of all cases of scrotal hernia of swine. The writer states, without qualification, that the tunica vaginalis cannot be relied upon to support the intestine in the hog. This is not the experience of the majority of veterinarians. The ordinary covered operation with ligature has proved nearly 100 per cent. perfect in scrotal hernia of swine, when the operation has been performed before pigs weigh more than twenty pounds. It is only in the cases of extra-vaginal or interstitial hernia (where the loop of intestine has passed through a rent in the vaginal portion of the tunica vaginalis) in swine that have attained considerable size that a different method of castration is necessary. In these latter types of herniae they are best handled by making an incision in the region of the groin parallel with the course of the spermatic cord, and, after having reduced the hernia, the vaginal canal is perfectly obliterated by means of sutures—ligation

en masse, which eliminates the use of undesirable packing. Castration may then be performed either by drawing the testicle out through the groin incision, or if it is too large, by means of a scrotal incision. The skin and fascia of the groin are then sutured and these sutures are left *in situ*. No after-treatment is necessary as no packing of any sort is employed, and the procedure is a safe one. A description of this method is to be found in the three recently published American works on castration. —Eds.

TREATMENT OF AZOTURIA

Mart R. Steffen's oxalic acid treatment for azoturia may be all right in the effete east, where oxalic acid is scarce, but we have more oxalic acid in this locality in an acre of beet tops and crowns than Steffen ever sold. We have also a great many of the most typical cases of azoturia that develop while pasturing on the said beet tops and crowns that contain oxalic acid. I have seen cases where animals pastured on beet tops and allowed their freedom went to water a distance of one-half mile and under such conditions developed azoturia to such an extent that every limb would be rigid, and the animals could scarcely struggle —this in animals with oxalic acid enough aboard to dissolve a thrombus the size of a pumpkin.

Why not discard a lot of this "tommyrot" about thrombus, cold weather disease and the like? Almost any live practitioner can testify to having seen cases of azoturia with the thermometer at 100 degrees F. Why not attribute the trouble to the liver as Law has pointed out, because of its having no gall bladder and containing, in such cases, in plethoric horses, one-fourth of the entire mass of the blood, and this surcharged with proteids ready to be forced through the liver and hepatic veins into the circulation?

In such a case the horse is a picture of health, is generally "up on the bit" and starts away prancing. The circulation is at once accelerated and the rich blood is carried to the musculature from the liver cells, and there results an engorgement wherein the plasma at once hardens, hemoglobin is thrown into the kidneys, and thus hemoturia results. The affected muscles resemble parboiled steak.

If, as Dr. Steffen attempts to set forth, a thrombus is the cause of the trouble, why are cattle not susceptible to this disease? Also, if oxalic acid will dissolve a thrombus, why does it form where an abundance of oxalic acid is consumed with the feed?

Now for the treatment. First, catheterize; then give one-half grain doses of strychnin sulphate. Put the horse in some kind of a sling and keep him on his feet. Keep him there until he can handle himself. If the horse does not stand in five to ten minutes, he should be let down and another attempt made soon to raise him. When let down, horses soon become restless, throwing themselves about, bruising and otherwise injuring themselves. When animals have been raised to their feet, keep them from moving about for several hours. Blankets wrung out of hot water and applied to the rigid muscles hasten recovery.

In cases where one is called too late, patients should be bedded down well and the attendant instructed to turn them every few hours and keep them as comfortable as possible. Also instructions should be left where the hide may be shipped for tanning. You can then jump into your car and curse the day you willingly left a horse prostrate with azoturia without attempting to put it on its feet.

Sterling, Colo. D. C. PATTERSON.

SCHISTOCORMUS FISSISPINALIS IN A CALF

A calf born July 5th, delivered as a posterior presentation, weighing about 100 pounds, lived two and one-half days. Delivery was accomplished with considerable difficulty. The

1, Rectal pouch, three inches long, extending through bifid spine; 2, rectal opening through which feces were passed.

calf suckled the cow with the assistance of an attendant.

The bifid spine of the sublumbar region extended from the abdominal cavity posteriorly. Through this opening there was a rectal pouch from which feces were passed. At the

posterior end of the anal or rectal pouch, there was another opening lined with mucous membrane, which was continuous with a loop of small intestine that apparently terminated into the outer side of the anal or rectal pouch. Between these two openings, a sac recurred, and in it was found another loop of small bowel. In the wall of this sac, the previously mentioned small intestine with opening, was found (the one through which feces were passed). The bifid condition was both anterior and posterior to this opening, involving the sublumbar region, the vertebrae being absent. Beginning at the sacrum, the bodies of the vertebrae were apparently normally formed, excepting for an absence of the neural canal. There was neither motion nor sensation posterior to the dorsal vertebrae. In probing the spinal or neural canal, the probe

1, Rectal pouch, superior view; 2, coils of intestine extending through bifid spine into rectal pouch; 3, acetabulum; 4, caudal extremity.

passed alongside the anal or rectal pouch and through the posterior opening of the bifid spine.

A loop of intestine extended down into the pelvis, where there was an apparent anal opening, situated at the normal location. On following this loop of intestine forward, we found that it terminated at the bifid opening in the rectal pouch, with an independent opening as before mentioned (anterior opening). Feces were passed through the anterior or large opening on the bifid spine. Nothing was observed to pass from the smaller or posterior opening.

Buffalo, N. Y. H. D. MARTIN, V. S.

The wisest saying of all was that the only true wisdom lay in not thinking that one knew what one did not know.—Cicero.

CHLOROFORMING STANDING

Experience in the different modes of the administration of chloroform to the horse has the effect of modifying considerably the views which one formerly held on the subject. Like many other procedures in practice, various opinions were set forth as regards the safest and most efficient method of administering this agent to the horse. Metaphorically speaking, certain "schools" were formed consisting of adherents to each method of administration. First, an apparatus was favored which admitted but little air during the period of inhalation, and the advantages claimed were that the animal went under the influence of the anesthetic quickly, and only a small amount of the drug was required. In the next place, an apparatus was devised by means of which the chloroform vapor was diluted with air prior to being inhaled. The advantage claimed was safety, but anesthesia was slowly induced, and not infrequently it was unsatisfactory.

The administration of chloroform with the horse in the standing posture has now come into favor, and although for many years a certain number of practitioners had employed this method with success, it was regarded by the majority as dangerous.

In order to judge of the safety or otherwise of a procedure, it is necessary to have experience of it under various conditions. With the ordinary method of administration of chloroform we may have a "run of luck" for a long period and begin to think that the risks are nil. Then an unexpected fatality occurs and we commence to anticipate danger and seek for precautions to prevent it. Having observed deaths resulting under both methods of administration, i. e., when the supply of air is limited, and when the chloroform vapor is diluted with air, and also during the early stages, and at the termination of the operation we felt inclined to give the standing method a trial, and to note the results on horses of various breeds and temperaments. So far they have exceeded our expectations, and are quite in accordance with the views expressed by practitioners who have adopted this method.

A little consideration of the subject will enable even the most skeptical individual to appreciate the advantages of the standing method over the time-honored procedure. Obviously, when a horse is cast and secured he struggles violently; add to this the exciting effects of the chloroform in its early stages, and it is easy to understand how he will take in large and irregular amounts of the vapor, owing to the increased and disturbed respiratory movements. The greatest difficulty is experienced to ascertain when the proper stage of anesthesia has been reached. If the animal suffers from a cardiac affection, it

is clear that the struggling and the excitement plus the effects of the drug, are likely to prove dangerous. In the standing method excitement no doubt is present, but the animal's movements are practically unrestricted and inhalation is carried out under far less difficulties. When he goes down, we know at any rate that the stage of excitement is over, and, as a rule, it takes very little more chloroform to render anesthesia perfect. Without doubt the mere fact of having a horse cast and secured prior to and during the administration of chloroform brings about violent struggling. This is obviated by adopting the standing method. It is quite true that some horses will display marked excitement during the early stages of administration, while on their feet, but, being unhampered in their movements, there is not that desperate struggle which characterizes the recumbent method.

Every method and procedure has its drawbacks, and, in connection with the present one, it is essential to point out that a wide space or an open field is essential in order to prevent accidents. No doubt by adopting the precaution of strapping up one fore leg, it is far easier to control the movements of the horse and to prevent him from rushing against a wall or falling in an awkward place. By utilizing this simple precaution, and by insisting that the attendants keep the horse moving in a circle, it is surprising how easily and safely a horse will go down. Of course some horses will display a far higher degree of excitement than others, but if the attendants follow the instructions as regards keeping the animal "on the move" and avoid pulling on the head ropes, even the most determined equine fighter will give in. A proper amount of the drug should be given at the start, and the amount of air should be restricted within the limits of safety. As regards the apparatus employed, the simpler it is the better. We have found Nelder's muzzle very efficient, and have also employed Cox's muzzle, but prefer the former. An initial full dose of the drug and the motto to "Keep moving," plus strapping up a fore limb, and selecting a proper place for the procedure are the essentials for success. The horse does the rest. The one drawback is that a sufficiently large space is not available in all veterinary infirmaries to carry out the method with safety to the horse and to the attendants. With horses of a placid temperament the risks in a limited space would be negligible, but one never knows what the equine brain is capable of doing when excited by chloroform, hence the necessity for adopting all due precautions in order to avoid accidents or claims for damages.

As regards administering drugs, such as chloral hydrate, morphin, hyoscin, etc., prior to giving chloroform, while in some instances they succeed in cutting short the exciting stage, the risks must be thought of, and on more than one occasion we have found that such agents increase the danger of respiratory failure in the case of prolonged operations.—E. Wallis Hoare in *Veterinary News.*

SAND COLIC IN HORSES

For the benefit of young practitioners just entering the Veterinary Officers' Reserve Corps, I think it would be well for you to warn them to look out for impaction of the bowels with sand (sand colic) in horses that have been in transit several days. We received one hundred horses from Ft. Sam Houston, Texas, and while on the road they became so hungry that they ate the sand which was placed in the bottom of the cars for protection against laminitis, etc.

I was inexperienced in army work and lost one horse before I found out what I had on my hands. Some of the horses had a profuse diarrhea when they arrived. After they were here a day or so they were so constipated that it took in some cases two days for an aloes ball to cause a good evacuation of the sand. When passage of the sand began to take place it was usually three days before it was entirely eliminated.

RUSSELL A. RUNNELLS,
Ft. Benj. Harrison, Ind. 2nd Lt. V. R. C.

ILLINOIS VETERINARY MEETING

The annual mid-summer meeting of the Illinois State Veterinary Medical Association was held at National Stock Yards, Ill., July 18th and 19th. An interesting program had been arranged and among those participating were Drs. N. S. Mayo, of Chicago; H. K. Wright, of Philadelphia; L. C. Tiffany, of Springfield; A. T. Kinsley, of Kansas City; E. L. Bertram, of the B. A. I. at the National Stock Yards; C. F. Wullner, of Alton; F. W. Seekamp, of Greenfield; J. F. Gillespie, of Tuscola; L. V. Michael, of Collinsville; Chas. E. Dille, of Cairo, and G. G. Ratz. A boat trip on the Mississippi was a pleasant innovation, and on board the ship Dr. H. Jensen, of Kansas City, conducted a round table discussion. A banquet and cabaret were given on the evening of the first day, at which Dr. W. J. Martin acted as toastmaster, Dr. W. Horace Hoskins, dean of the New York State Veterinary College, being the principal speaker and taking for his subject "What associations should be interested in." An open air clinic closed the meeting. Demonstrations of methods of casting and handling cows and horses were presented.

MISSOURI VETERINARY MEDICAL ASSOCIATION MEETING

A full program, large attendance and keen interest in the discussion were features of the twenty-fifth anniversary meeting of the Missouri Veterinary Medical Association at Sedalia, Mo., July 25 and 26. About one hundred veterinarians and a number of prominent stockmen participated, there being several papers from the laity.

Many of the papers drew forth a great deal of discussion, especially the one by Dr. Gouge entitled "The Missouri Veterinarian as Others See Him." Dr. Gouge drew especial attention to the objectionable practices of some drug concerns in supplying biologics to laymen and the discussion of this activity developed a resolution looking to the elimination of it.

The themes presented by laymen were very instructive and will likely aid materially in drawing stockowners and veterinarians much closer together. Mr. Gentry devoted most of his attention to the undesirable features of laws regarding interstate shipment and many of his ideas were good ones. Prof. E. A. Trowbridge, professor of Animal Husbandry of the University of Missouri, had something worth while to offer regarding the veterinarian's lack of training in feeding and breeding livestock.

The banquet, which was held in the open air, was given over entirely to speeches by laymen and much of great interest to the profession was developed. Hon. Jewell Mayes, secretary of the Missouri Board of Agriculture, was the principal speaker. His theme was patriotism and was an appeal to the veterinarians to keep out of military service because their services were most needed in conserving stock interests.

Two important resolutions were adopted. One provides that the practice of army veterinarians called to the colors from Missouri shall be cared for by neighboring practitioners and earnings divided with the absent veterinarian's family; further, that the home veterinarians shall help restore the practice of the one called to war when he returns.

The other resolution provided for a committee to collect specimens for exhibit at the state fair, and several veterinarians to conduct educational lectures and displays at the fair.

Thirty-six new members were accepted and a campaign formulated to enlist every graduate veterinarian in the ranks of the association.

CHAS. D. FOLSE, Secy.

Kansas City, Mo.

He that wrestles with us strengthens our nerves, and sharpens our skill. Our antagonist is our helper.—Burke.

SEMI-ANNUAL MEETING OF THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY

The semi-annual meeting of the Veterinary Medical Association of New Jersey was held at the Hotel Marlborough, Asbury Park, N. J., Thursday and Friday, July 12-13, 1917.

The meeting was opened at 2 p. m. by President J. Payne Lowe. The mayor of the city welcomed the association in a most gracious manner, and Dr. Thos. E. Smith assured the mayor of the society's appreciation of the pleasant welcome.

The first paper was presented by F. C. Minkler, Commissioner of Agriculture of New Jersey, the subject being "Hog Cholera Control in New Jersey." He admitted the value and almost absolute necessity of the handling of all serum and virus by licensed veterinarians to insure uniform and best results, but pointed out that there are certain parts of New Jersey where it is practically impossible to obtain the services of a veterinarian and in such places it seems better to take chances of a layman administering serum than not to use it at all. It is his belief from experience that the single treatment is better in most cases, and that the double treatment causes a retarding of growth in a certain percentage of young hogs. He further believes that all hogs sick with cholera should be destroyed at once as they are not worth keeping even though they recover, and that the hog that has range has a greater resistance to the disease than those confined in small pens. He asked all veterinarians of the state to help guard against the lung worm that is said to be causing so much trouble in the West.

In explaining the system of controlling hog cholera in New Jersey, he said that the state pays for the services of the veterinarian and the owner pays for the serum, believing one not having faith or interest enough in the serum as a preventive measure to stand that part of the expense is not a progressive raiser or breeder. He mentioned some particular locality of New Jersey where very insanitary conditions exist but are said to be practically free from cholera, and wondered if successive immunization played any important part.

Dr. Eichorn answered this question and gave as his opinion that there was not much passing of immunity from mother to offspring, but it might be possible that the garbage they fed contained more or less attenuated infectious material.

Dr. Gill discussed the question from an economic standpoint. He believes there is

a greater necessity of better technic in handling the entire situation and that the state should take entire charge and see to it that all serum and virus are potent as is said to be done in Massachusetts.

This discussion was followed by a splendid paper by Dr. Eichorn, "Veterinary Biological Therapeutics." He first pointed out the close relation of biologics and immunity and the struggle that is taking place in the body between infection and resistance, and stated that a knowledge of immunity is necessary for the intelligent application of biologics.

He explained briefly both active and passive immunity, the latter usually being the choice when immediate immunity is desired but that where there is a sufficient time to immunize and a long period of immunity is desired, the active is of course the better; while what is known as the simultaneous method in a sense has the advantages of both the active and passive.

He mentioned the principal biologics in use, vaccines, bacterines and sera; also others used occasionally, such as sensitized vaccine.

In use they may be known as: 1st, prophylactic; 2nd, curative; 3rd, both prophylactic and curative and 4th, diagnostic.

They are most valuable where used as prophylactics. When used as curative agents it is usually necessary to give attention to their details such as surgical interference in case of fistula. The fleeting immunity of serum should always be kept in mind. The technic of administering is of great importance with reference to asepsis, dose, etc.

The care of biologic products after being received from the laboratory does not receive sufficient attention. The proper destruction of containers that have contained a living virus is of vital importance.

He then discussed hog cholera serum and said perhaps it is one of the most important biological products that has been produced in years, and that many more successes would be to its credit had not the error of diagnosis been so frequent. He admitted that hog cholera serum is the crudest biologic we have, there being no known method for its standardization, but that even in its present condition if its use were confined to true hog cholera, it would be found to be quite a specific agent. He mentioned several of the diseases which closely simulate hog cholera such as swill poisoning and pyobacillosis, and stated that the attention given to diseases of hogs of late is bringing to light knowledge that many outbreaks of diseases among hogs are due to infection other than the filtrable virus of cholera.

Tetanus antitoxin can be so prepared as to contain a definite number of units per c.c., and consequently there results a definite dose and a positive prophylactic agent.

White scours in calves is becoming of great importance. A serum is now produced which acts both as a prophylactic and curative. He emphasized the importance of sanitation in the control of calf scours so as to guard against the known channels of infection.

A serum has been prepared for equine influenza which seems to have given beneficial results in doses of from 50 to 200 c.c. daily. In very acute cases 200 c.c. are given intravenously in one dose. The best serum is obtained by hyperimmunizing horses that have recovered from an attack of the disease. As to vaccines, no definite data is available as to its preventive virtue in equine influenza.

The etiology of canine distemper is not definitely agreed upon. The bronchisepticus organism is found rather regularly in certain discharges such as the nasal discharge, and the vaccine seems to have some effect at least in shortening the course of the disease.

Basing reasoning on self-immunity leads to the hope that a useful vaccine will be found for contagious abortion. In England they are now using live cultures for this purpose.

Diagnostic biologics:—The introduction into the animal body of an infection is always followed by more or less stimulation of antibody content and one of two conditions results, either an immune or a hypersensitive condition. The latter is what happens in the case of a reaction to the various mallein tests. Speaking of tests, it is his opinion that the subcutaneous is the most accurate for tuberculosis and the ophthalmic for glanders. The value of these diagnostic products lies in their detection of latent cases which is so strikingly exemplified in the case of dourine.

On request he discussed briefly anthrax and the newer methods of attenuated spore vaccine and anti-anthrax serum, the more uniform keeping of the spore vaccine being made possible. Serum alone as a curative agent is beyond the experimental stage.

Dr. Theobald Smith demonstrated the great viability of the spores; dried on silk threads it was found they were still virulent after twenty-five years.

A most interesting discussion on the various subjects touched on by Dr. Eichhorn was engaged in by Drs. Lowe, Gill, and others.

"State Veterinary Medicine" was the topic that Dean Hoskins spoke on, bringing

greetings from the Detroit meeting which he had just attended. He reported a splendid meeting and spoke very kindly of the association and the most generous way in which they had treated him, having given a dinner in his honor and made him the recipient of a most beautiful loving cup.

In reviewing state veterinary medicine he harked back to the days when the beloved Salmon founded the Bureau of Animal Industry back in the '80's. He pointed to this as a community of action and how out of veterinary associations should come the common demand for necessary legislation. He recited how $212,000,000 are said to be lost annually in animal industry, much of which could be prevented, and he made a forceful appeal for coöperation in seeking proper legislation to remedy the things that are interfering with the usefulness of our profession.

He was followed by Dr. DeVine, whose subject was "Dairy Cattle and Breeding Problems." He discussed abortion, sterility, white scours in calves and retained afterbirth.

He stated that his custom of treating the latter is douching with mild antiseptics in such cases where putrefaction has taken place and thorough irrigation in all cases with a physiological salt solution, using a pump and tube in preference to the funnel and hose. He said that while this method has served him well for some fifteen years some preferred other methods. He then read an extract from Dr. Albrechtsen's report, published in the April, 1917, number of the *Cornell Veterinarian*, in which the author stated after twenty years of specialization in this work that, "for irrigation I use a physiological salt solution. Experience has shown me that mechanical cleansing is of chief importance, while disinfection of the mucosa seems to be of less value. The pump is far preferable to the common funnel and hose."

Opinion was expressed on all sides that this was by far the best meeting of the New Jersey association held in years, and great satisfaction was expressed by everyone that the program had not been too full thereby allowing a thorough and satisfactory discussion of every subject.

Goshen, N. Y. J. F. DE VINE.

Our grand business undoubtedly is, not to see what lies dimly at a distance, but to do what lies clearly at hand.—Carlyle.

Whoever thinks a faultless piece to see,
Thinks what ne'er was, nor is, nor e'er shall be.
—Pope.

MILK INSPECTION—ITS RELATION TO THE VETERINARIAN

(*Continued from page* 696)

grounds that it causes scurvy. The New York City records show that there is no increase of scurvy where ninety per cent of the milk is pasteurized. Therefore, if the entire milk supply is to be safeguarded it must be pasteurized.

In conclusion I will say that the veterinarian can do a great work along the lines of advising the dairy farmer as to the necessity of pasteurization, especially where cities have passed regulations that milk be pasteurized. At least show him how to keep his milk clean, cold and covered; so doing will help him over many rough places. All veterinarians should work to have market milk graded, as it will have a tendency to upbuild the farms and dairy herds. Is not our cotton graded, our apples graded, our hay graded, our corn graded, in fact about everything placed upon the market except milk? We know that some men can and do put out a better milk than others, therefore it should be made an object to place good milk on the market.

WASHINGTON STATE VETERINARY MEETING

The recent meeting of the Washington State Veterinary Medical Association, at Pullman, Wash., was a very successful one, covering a period of three days following immediately after a one week's post-graduate course given by the state veterinary college. This gave those in attendance practically nine days of the same kind of work altogether, and the time was very fully occupied. The two topics that came in for more attention than any others were forage poisoning and contagious abortion. It was noticeable that the interest both in the post-graduate course and the association meeting was centered on dairy topics more than had been the case in former years.

Dr. L. C. Pelton, of Seattle, was elected president; Dr. Chas. A. Jones, of North Yakima, vice-president, and the writer re-elected secretary-treasurer. The next regular meeting will be held at Portland, Oregon, in June, 1918, in conjunction with the Oregon state association.

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"This flag under which we serve would have been dishonored had we withheld our hand." —*President Wilson.*

MID-SUMMER MEETING OF THE SOUTH DAKOTA VETERINARY MEDICAL ASSOCIATION

The South Dakota Veterinary Medical Association held one of the best and most instructive meetings in the history of the organization, at Lake Kampeska, July 17th, 18th, 1917. At 1:30 P. M. of the first day the meeting was called to order by President Dr. H. A. Hartwich at the Bond place on the south shore of beautiful Lake Kampeska. About thirty members and a number of visitors were present.

The first number on the program was the address of welcome delivered by Col. Lee Stover, of Watertown. Col. Stover got his military rank in the Spanish-American War and has since that time been engaged in the practice of law, agricultural pursuits and is now president of the Watertown Water Co. Being engaged in the raising of live stock, Mr. Stover was in a position to give the veterinarians of this state a very interesting and instructive talk when he extended the city's welcome.

The next number was an address given by Dr. C. C. Lipp, head of the veterinary department of the state college. Dr. Lipp chose for his subject South Dakota's Animal Health Laboratory and in an interesting manner gave us an idea of what the state will have and what they will be in a position to do for the live stock interests of the state when the new laboratory now under construction is finished. Dr. Lipp is a very interesting speaker and his address was very much appreciated.

Dr. John Dinwoodie, of the extension division of the veterinary department of the college addressed those present on coöperation between county agents and veterinarians. He brought out some very interesting points showing the vital interest to the live stock industry of the state through our coöperation.

President Hartwich went over the numbers generally and gave a very interesting, but brief talk. After this the members and visitors including the ladies repaired to the lawn where a delicious banquet was served. When dinner was over the launch, Stella Mae, was waiting for us and all enjoyed an hour-and-a-half's ride around the lake, after which all went by automobile to the council chamber of the city hall where we enjoyed an illustrated lecture on the pathology of contagious abortion of cattle given by Dr. W. L. Boyd of the veterinary department of the University of Minnesota. Dr. Boyd's lecture was indeed a rare treat to the veterinarians of South Dakota for it was on one of the most interesting subjects concerning the profession today.

Wednesday morning's session was given over to business matters, the most important of which was the rescinding of the Mitchell resolution which will permit members of this association to take out state deputyships and maintain their membership in the association. Many new veterinarians coming into the state in the past four years have been unable to be elected to membership in our association on account of their holding deputyships which they were urged to accept at the time they took the state board examinations. Several veterinarians were elected to membership and others will join as soon as they are aware the opportunity awaits them.

The afternoon was taken up with the clinic at Dr. Allen's veterinary hospital. Dr. J. P. Foster, former state veterinarian, demonstrated an operation in spaying puppies through a very small incision without introducing the fingers in the abdomen. This operation is very practical in operating on puppies.

Dr. W. L. Boyd gave a practical demonstration on the treatment of sterility in cattle, the subject being a pure-bred Holstein cow, barren for two years. To a great many of us, sterility work is entirely new and this demonstration proved very instructive.

Dr. T. H. Hicks, former state veterinarian and probably the most expert ridgling operator in the Northwest, demonstrated the ridgling operation. The subject was a four year old draft colt, right testicle in abdomen. The operation was performed in forty-five seconds. The animal made an uneventful recovery.

After the clinic the meeting was adjourned. Every one present expressed themselves very much pleased with the meeting and the pleasant stay in Watertown and at the lake. Our annual meeting will be held at Sioux Falls, January 15th-16th, 1918.

S. W. ALLEN,
Secretary-Treasurer.

It is not a lucky word, this same "impossible"; no good comes of those that have it so often in their mouth.—Carlyle.

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A NEW MERCURIAL GERMICIDE

Schamberg, Raiziss and Kolmer, of Philadelphia, have presented to the National Research Council results which they have obtained in the preparation of a new mercurial germicide. This has been formed by the introduction of mercury into the phenol group, and the trade name proposed for it is "Mercurophen." The above mentioned investigators have made a thorough study of this new compound and have stated the results of their investigation in the following conclusions:

"1. Mercurial compound No. 99 'Mercurophen' exhibits against the Staphylococcus aureus in the 'antiseptic test' fifty times greater activity than mercuric chlorid; it destroys these bacteria on prolonged exposure in bouillon in a dilution of 1:10,000,000.

"2. In a menstruum of ascitic fluid, mercurophen is two hundred times more germicidal against the Staphylococcus aureus than mercuric chlorid.

"3. By the Rideal-Walker method, mercurophen exhibits ten thousand times greater germicidal power against the Bacillus typhosus than phenol and over thirty times greater activity than mercuric chlorid.

"4. Mercurophen disinfects the hands in dilutions of from 1:10,000 to 1:40,000 in one minute, whereas mercuric chlorid in a dilution of 1:5,000 requires over five minutes, and in a dilution of 1:10,000 requires over fifteen minutes.

"5. Mercurophen sterilizes ordinary rubber tubing in thirty minutes in a dilution of 1:100,000. Mercuric chlorid accomplishes this result in a dilution of 1:16,000. With tubing heavily infected with cocci and spores, mercurophen required a 1:500 solution and mercuric chlorid fails in a 1:50 solution.

"6. Mercurophen in a 1:5,000 solution sterilizes feces in thirty minutes; mercuric chlorid accomplishes this result in a 1:2,000 solution.

"7. The precipitating effect of mercuric chlorid on human serum proteins is four to five times greater than that exhibited by mercurophen. This is an obvious advantage possessed by the latter substance.

"8. Solution of 1:5,000 of mercurophen exhibit no evidence of tarnishing on nickel plated instruments after twenty-four hours' exposure.

"9. In experiments not detailed here, mercurophen administered intravenously in rabbits has a lower toxicity than mercuric chlorid.

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GENESEE VALLEY VETERINARIANS MEET

The semi-annual meeting of the Genesee Valley Veterinary Medical Association was held at Dr. H. S. Beebe's hospital, Albion, N. Y., on July 25, 1917. Twenty members of the association and ten visiting veterinarians were present. A very interesting clinic was held in the morning, Dr. J. N. Frost, of Ithaca, operating on a variety of cases. Lunch was served at the Elks' club rooms, after which Dr. F. E. McClelland read a paper on serums and antitoxins; Dr. Joseph Wilder, on ridgling castration; Dr. W. G. Dodds, on shipping fever; and Dr. F. E. Cleaver, on some changes in the agricultural law. Each of the papers brought out interesting discussions. Three new members were elected. The next meeting will be held during the second week in January, at Rochester, N. Y.

Henrietta, N. Y. J. H. TAYLOR, *Secretary.*

The Twentieth Century Farmer, Omaha, devoted the entire first page of its issue of September 19th to a report of the recent meeting of the A. V. M. A. in Kansas City. The report was written by Mr. E. Z. Russell, editor-in-chief.

TESTIMONIAL

I have last year's issues of the JOURNAL that I want to keep intact, and expect to file my 1917 issues as I receive them, for they are a good deal like the *Toronto Globe* used to be to the old reformers in Canada. Especially the older Scotchmen used to call it, the Scotchman's Bible, and I think the JOURNAL you print is in about the same class with the veterinarians; at least, as far as I am concerned, it is better. So send me another Big Ben Binder.

Lenox, Iowa. W. READHEAD.

Dr. R. W. Briggs was appointed federal veterinary inspector for the district surrounding Iowa Falls, Ia., and has moved his family to that city.

Dr. W. B. Tipton was appointed city milk inspector at Evansville, Ind., July 6th.

The New York City fire department has announced that horses withdrawn from service will not be sold hereafter to private purchasers until their fitness for further service has been determined by veterinarians of the Society for the Prevention of Cruelty to Animals. This arrangement has been made to prevent incapacitated animals from being sold to junk men and others who would force them to work.

Dr. O. O. Osborne, formerly of Granville, Ohio, is now located at Centerburg, Ohio, where he has purchased the practice of Dr. Perkins.

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Hemorrhagic Septicemia Vaccine, for the prophylaxis and treatment of this condition in cattle due to B. Bovisepticus.
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B. M. Goodman, D. V. M.

Dr. E. P. Flower, of the Louisiana Live-stock sanitary board, recently started a campaign against scabies among sheep in that state. The disease has but lately made its appearance in Louisiana, and it is hoped that its spread may be checked before serious losses in wool and mutton have occurred.

Dr. H. C. Fischer, formerly of Bellaire, Mich., has located at Deering, S. D.

It is reported that there is a shortage of work horses with which to harvest the crops in Orange county, Texas, as a result of losses from anthrax. During the last few months about 1,000 horses have died of the disease.

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Large numbers of sheep and hogs have also succumbed to the malady.

Dr. Wm. E. Brockelsby, of the firm of Brockelsby and McClellan, Lawrence, Kansas, died at his home, from acute peritonitis, August 12th. He was forty-one years old and had practiced in Lawrence since he graduated from the Kansas City Veterinary College eight years ago.

Dr. F. S. Ballard, of Sibley, Iowa, was reappointed assistant state veterinarian for a three-year term, August 6th.

Dr. C. R. Fry, of Cincinnati, Iowa, and Miss Donnale Head were married August 21st. Dr. Fry has been located in Cincinnati since June. He was commissioned as second lieutenant of the veterinary reserve corps, July 20th.

The national convention of the Bureau of Animal Industry employees' association, scheduled at Omaha, August 13th, 14th and 15th, was postponed until next year on account of the war.

A new invention of artificial legs for horses and dogs has been offered to the Philadelphia branch of the Red Star Animal Relief by a French-American veterinarian, who refuses to

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As long as a lack of mutual interest continues between these two classes the Veterinary Profession will not come into its own. Veterinarians will occupy the place they deserve when their clients look to them not only in emergencies, but also for advice upon the feeding and care of their animals, the hygiene of their barns, stables, and pens, and upon principles of breeding. To bring this about, the Veterinarian must have a broad and sympathetic knowledge of all agricultural matters,—*the above is the conclusion of the best informed practitioners and students of agricultural matters.* Towards obtaining that breadth of view and sympathetic understanding, you cannot take a better step than the procuring of the five volumes in the Lippincott's Farm Manual Series listed below.

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disclose his name. The leg is made of steel with a special quadrant spring imitating the vertical and lateral flexings of the fetlock. It is claimed that a horse or mule that has lost a leg may be utilized for light farm work if these legs are used.

Dr. A. H. Moye, of Sanborn, Iowa, has located at Everly, Iowa.

It is announced that the school of veterinary medicine of the Oklahoma Agricultural and Mechanical College, Stillwater, Okla., has now made arrangements to meet all government requirements for approved veterinary colleges.

Dr. William F. Derr, of Wooster, Ohio, died at his home September 6th. He was born in Pennsylvania in 1842 and at the time of his death was 75 years old. He came to Ohio after graduating from college and started his practice in 1878. He served as a soldier in the Civil war and after settling in Wooster became active in the municipal affairs of that city as a member of the city council and of the board of public service directors. He also served as a member of the state livestock commission for several years. The deceased is survived by his wife, one daughter, two sons, two brothers, two sisters and two grandchildren.

Secretary of War Baker on August 28th approved a bill introduced by Senator Brady, of Idaho, to accept as a gift 1,000 dogs to be trained for military purposes.

The government inspectors of serum plants have asked serum manufacturers to adopt precautions to insure that serum shall go out only to those who will use it properly during the war. Vigilance in the admittance of visitors and the employment of men who might be alien enemies is also emphasized.

Dr. A. C. Trefzer, of Liberty, Neb., reported for duty at the St. Joseph, Mo., branch of the Bureau of Animal Industry. Dr. R. E. Snedden was transferred from St. Joseph to the Cleveland, Ohio, branch.

Dr. E. C. Goodrich, of St. Joseph, Mich., and Miss Anna K. Glock, of Louisville, Ky., were married August 21st.

Dr. Seth Lockwood, of Woodbridge, N. J., died August 20th.

Dr. and Mrs. D. S. Barclay, of Macon, Miss., conducted a minstrel show for the benefit of the Noxubee Cavalry Troop H, August 30th. Dr. and Mrs. Barclay were among the star performers, and a neat little sum was realized for the cavalry boys.

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POULTRY DISEASES

By B. F. Kaupp, M. S., D. V. S., Pathologist and Poultry Investigator, North Carolina Agricultural Experiment Station and Agricultural and Mechanical College.

SECOND EDITION, REVISED AND ENLARGED

That the first edition of "Poultry Diseases" should have been exhausted and a new edition necessitated in so short a time, is evidence of the need for a work on this subject and that this one has met that need.

The present edition has been wholly reset, its scope considerably enlarged, its discussions amplified and such changes as have been necessitated by our rapidly advancing knowledge of the subject have been made.

Veterinarians are being called upon more and more for advice and other assistance in the management of diseases in the flock; not, except rarely, to treat individual birds, but to deal with disease as it may affect the whole flock. The present need for the conservation of all food heightens the value of such service and insures a demand for the services of the veterinarian who is proficient in this branch of comparative medicine.

Kaupp's "Poultry Diseases" is a complete and exhaustive work on this branch of veterinary science. The new edition is especially valuable to those wishing to familiarize themselves with avian affections. Much new material has been added, particularly in the chapters on anatomy, materia medica and poisoning, while the number of illustrations has been increased to eighty. A section on caponizing has been included. This revised and enlarged edition is an authoritative, up-to-date work on diseases of poultry. It should be in the library of every practitioner and student.

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Dr. L. H. Quitman, of Chicago, died at the German-American hospital as the result of an accidental shooting, September 8th.

Dr. E. G. L. Harbour, for many years located at Baldwin City, Kans., has moved to Lawrence, Kans.

Dr. G. S. Skilman, of Ransomville, N. Y., was killed when an automobile occupied by him and four other men was struck by a trolley car at Niagara Falls, N. Y., September 7th.

Dr. F. Lewis, of Lovington, Ill., was recently appointed chief veterinarian at the Union Stock Yards in Chicago, where he began his duties September 1st.

Dr. N. F. Williams, Amarillo, Texas, President of the Texas Veterinary Medical Association, has sent us the following communication:

"Dr. Floyd M. Weaver, aged 26 years, formerly of Webb City, Mo., and a member of the graduating class of the St. Joseph Veterinary College, died at Panhandle, Texas, July 4, 1917. The doctor's health had been failing for some time, and it was with the hope of benefiting his condition that he came to Texas during his Junior vacation. His life's ambition to become a qualified veterinarian, and a determination to finish his veterinary education at once, took him North for the college term of 1916-17. The effort proved too much, and although Dr. Weaver struggled on to his graduation, his physical condition was greatly impaired and he declined rapidly. He sacrificed years of his life to die a veterinarian. The doctor is survived by a wife, who was his constant co-worker and companion."

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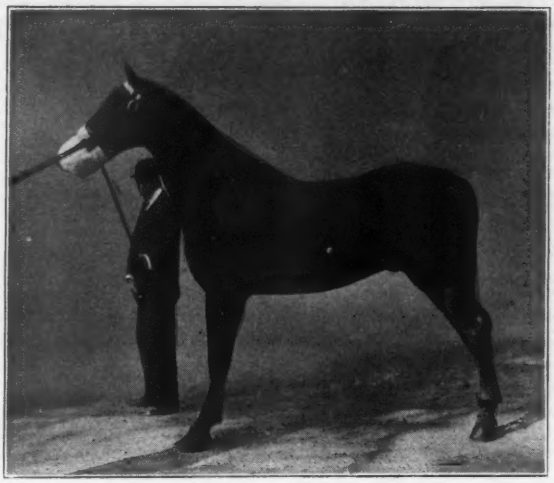

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ASSOCIATION MEETINGS

The information given below is up-to-date and has been furnished by the secretaries of the various associations listed. Secretaries are requested to supply us data regarding their associations after each meeting; otherwise, the association will necessarily be dropped from the list. We ask secretaries to kindly co-operate with us in keeping before the members of their associations the date and place of the next meeting

Name of Association	Date of Meeting	Place of Meeting	Secretary
Alabama Vet. Med. Assn.			C. A. Cary, Auburn, Ala.
Alumni Assn., Col. of Vet. Med., O. S. U.		Columbus, O.	W. R. Hobbs, O. S. U., Columbus, O.
Alumni Assn., N. Y. State Vet. College		New York	P. K. Nichols, Port Richmond, N. Y.
Alumni Assn., U. S. Col. Vet. Surg.	April 1918	Washington, D. C.	Chas. M Mansfield, 1344 Newton St., Washington, D. C.
American Vet. Med. Assn.	Aug. 20-24, 1917	Kansas City, Mo.	L. A. Merillat, 1827 Wabash, Chicago.
Arkansas Vet. Med. Assn.	Jan. 1918	Little Rock, Ark.	H. M. Gow, Little Rock.
British Columbia Vet. Assn.	Sept. 21, 22, 1917	Penticton, B. C.	Kenneth Chester, New Westminster, B. C.
B. A. I. Vet. Assn. of So. Omaha	4 times a year	So. Omaha, Neb.	J. W. Giffee, c/o B. A. I., So. Omaha
California State Vet. Med. Assn.	Sept. 12	Hanford, Cal.	F. M. Hayes, Davis, Cal.
Central Canada Vet. Assn.	3rd week Jan. 1918	Ottawa, Ont.	A. B. Wickware, Experimental Farm Ottawa.
Central N. Y. Vet. Med. Assn.	Last week in June and Nov.	Syracuse, N. Y.	W. B. Switzer, Oswego, N. Y.
Chicago Vet. Society	2nd Tues. of month	Chicago, Ill.	A. A. Leibold, 4421 N. Lincoln St., Chicago.
Colorado Vet. Med. Assn.	January, 1918	Ft. Collins, Colo.	I. F. Newsom, Ft. Collins, Colo.
Conestoga Veterinary Club	2nd Thurs. of month	Lancaster, Pa.	H. W. Barnard, 529 E. King St., Lancaster, Pa.
Connecticut Vet. Med. Assn.	Aug. 8	Bristol, Conn.	A. T. Gilyard, Waterbury, Conn.
Eastern Iowa Vet. Med. Assn.	Dec. 13	Muscatine, Ia.	Jno. Tillie, Muscatine, Ia.
Genesee County Vet. Med. Assn.			W. J. Houden, Flint, Mich.
Genesee Valley Vet. Med. Assn.	July	Rochester, N. Y.	I. H. Taylor, Henrietta, N. Y.
Georgia State Vet. Assn.	Sept. 18, 19, 1917	Columbus, Ga.	Peter F. Bahnsen, Capitol Bldg., Atlanta.
Hudson Co. Vet. Practitioners' Club	Monthly	Jersey City, N. J.	B. D. Blair, 782 Montgomery St., Jersey City, N. J.
Hudson Valley Vet. Med. Society	Nov. 7	Millbrook, N. Y.	Wm. Henry Kelly, Albany, N. Y
Idaho Assn. of Vet. Graduates		Boise, Idaho	C. V. Williams, Blackfoot, Idaho.
Idaho Vet. Med. Assn.	Sept. 19, 20	Nampa, Idaho	O. C. Engebretson, Burley, Idaho.
Illinois State Vet. Med. Assn.		East St. Louis, Ill.	L. A. Merillat, 1827 Wabash Ave., Chicago
Illmo Vet. Med. Assn.	Oct. 31	E. St. Louis, Ill.	L. R. McKinley, Freeburg, Ill.
Indiana Vet Med Assn.	Jan. 1918	Indianapolis, Ind.	Geo. H. Roberts, Indianapolis, Ind.
Iowa Vet. Med. Assn.		Ames, Iowa	H. B Treman, Rockwell City, Ia.
Kansas Vet. Med. Assn.	Jan. 2, 3, 1918	Manhattan, Kan.	J. H Burt, Manhattan, Kan.
Kentucky Vet. Med. Assn.	Sept. 13, 14, 1917	Louisville, Ky.	D. E. Westmorland, Owensboro, Ky.
Keystone Vet. Med. Assn.	2nd Tuesday of month	Philadelphia	L. B. Davis, 857 E. Girard, Philadelphia
Lake Erie Vet. Med. Assn.	1st Tuesday in Dec.	Norwalk, O.	N. D. Backus, Elyria, O.
Los Angeles Vet. Med. Assn.	3rd Wed. of month	Los Angeles	J. A. Dell, 16th & Pacific, Los Angeles
Maine Vet. Med. Assn.		Bangor, Me.	M. E. Maddocks, Augusta, Me.
Manitoba Vet. Assn.		Winnipeg, Man.	W. Hilton, 275 James St., Winnipeg.
Massachusetts Vet. Med. Assn.	Monthly	Quincy House, Boston	E. A. Cahill, Boston, Mass.
Michigan State Vet. Med. Assn.	1st Tues. & Wed. after 1st Mon. in February	Lansing, Mich.	W. Austin Ewalt, Mt. Clemens, Mich.
Minnesota State V. M. Assn.	Jan. 9, 10, 11, 1918	Minneapolis, Minn.	G. Ed. Leech, Winona, Minn.
Mississippi State Vet. Med. Assn.	January 8-9, 1918	Meridian, Miss.	E. S. Norton, Greenville, Miss.
Mississippi Valley Vet. Med. Assn.	July 6, 1917	Galesburg, Ill.	W. Lester Hollister, Avon, Ill.
Missouri Valley Vet. Assn.		St. Joseph, Mo.	R. F. Bourne, 1336 E. 15th, Kansas City.
Missouri Vet. Med. Assn.	Last week in July	Neosho, Mo.	C. D. Foise, 1336 E. 15th St., Kansas City
Montana Vet. Med. Assn.	Sept. 26-27, 1917	Helena, Mont.	A. D. Knowles, Missoula, Mont.
Montgomery Co. Vet. Med. Assn.	Last Fri. each month	Crawfordsville, Ind.	A. B. Niven, Crawfordsville, Ind.

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Name of Association	Date of Meeting	Place of Meeting	Secretary
Nat'l Assn. B. A. I. Employees	2nd Mon. in Aug., 1917.	Omaha, Neb.	S. J. Walkley, 185 N. W. Ave., Milwaukee
Nebraska Vet. Med. Assn.	2nd Tues. & Wed. in Dec.	Lincoln, Neb.	S. W. Alford, Lincoln, Neb.
New York State Vet. Med. Society	July 25, 26, 27	Brooklyn, N. Y.	C. P. Fitch, Ithaca, N. Y.
North Carolina Vet. Med. Assn.		Charlotte, N. C.	J. P. Spoon, Burlington, N. C.
North Dakota Vet. Assn.	July, 1917.	Fargo, N. D.	W. J. Mulroony, Havana, N. D.
Northeastern Indiana Vet. Assn.	Oct. 9, 1917.	Ft. Wayne, Ind.	R. M. Boyd, Avilla, Ind.
Northwestern Ohio Vet. Med. Assn.	Feb. 21.	Toledo, O.	Paul E. Wood, Ottawa, Ohio.
Ohio State Vet. Med. Assn.	Jan. 10, 11, 1918.	O. S. U. Columbus, O.	F. A. Lambert, care O. S. U., Columbus
Ohio Valley Vet. Med. Assn.	July	Oakland City, Ind.	C. S. Henry, Terre Haute, Ind.
Oklahoma State Vet. Med. Assn.	May 3, 4.	Oklahoma City.	R. C. Smith, Enid, Okla.
Ontario Vet. Assn.		Toronto, Canada	H. E. Hurd, 397 Queen St., W., Toronto, Ont.
Oregon Vet. Med. Society		Probably Salem, Ore.	B. T. Simms, Corvallis, Ore.
Pennsylvania State Vet. Med. Assn.		Harrisburg, Pa.	E. H. Yunker, 2344 N. 18th, Philadelphia
Rhode Island Vet. Med. Assn.	2nd Tues. Jan.		U. S. Richards, Woonsocket, R. I.
San Joaquin Valley Vet. Med. Assn.	2nd Wed. of month	Fresno, Cal.	Jos. M. Arburua, Hanford, Cal.
Schuylkill Valley Vet. Med. Assn.		Reading, Pa.	C. R. Potteiger, Reading, Pa.
South Dakota Vet. Med. Assn.	Jan. 15, 16, 1918.	Sioux Falls, S. D.	S. W. Allen, Watertown, S. D.
Southeastern States Vet. Med. Assn.	Dec. 27, 28, 29, 1917.	Chattanooga, Tenn.	G. A. Roberts, West Raleigh, N. C.
Southern Aux. Cal. State Vet. Med. Assn.	Sept. 19, 1917.	Los Angeles, Cal.	J. A. Dell, 16th & Pacific, Los Angeles
S. W. Michigan Vet. Med. Assn.	Aug. 31.	Indian Lake, Mich.	L. A. Minter, Niles, Mich.
Tenn. Vet. Med. Assn.	Nov. 7, 8, 1917.	Columbia, Tenn.	F. B. Youree, Lebanon, Tenn.
Texas Vet. Med. Assn.		Ft. Worth, Tex.	E. M. Wiggs, Greenville, Texas.
Tri-County Vet. Med. Assn.	March 14.	Liberty, Ind.	Geo. G. Ferling, Richmond, Ind.
Twin City Vet Med. Society	Once a month.	St. Paul.	C. C. Palmer, St. Paul, Minn.
U. S. Live Stock Sanitary Assn.		Chicago	H. S. Ward, St. Paul, Minn.
Utah Vet. Med. Assn.		Logan, Utah.	E. P. Coburn, Brighton City, Utah.
Veterinary Assn. of Saskatchewan.	Aug. 15, 16, 17, 1918.	Regina, Sask.	R. G. Chasmar, Hanley, Sask.
Vet. Med. Assn. of New Jersey		Asbury Park, N. J.	E. L. Loblein, New Brunswick, N. J.
Vet. Med. Assn. of N. Y. City	1st Wed. ea. mo. except July, Aug., Sept.	New York City.	R. S. MacKellar, 351 W. 11th St., N. Y.
Vet. Med. Assn. of Geo. Washington Univ.	1st Sat. each month	Washington, D. C.	C. W. Rippon, 2115 14th St., N. W., Washington, D. C.
Vet. Med. Society Wash. State College	1st and 2nd Tues. ea. mo.	Pullman, Wash.	Claude Holden.
Virginia State Vet. Med Assn.		Norfolk, Va.	W. G. Chrisman, Blacksburg, Va.
Washington State Vet. Med. Assn.	June, 1918.	Portland, Ore.	Carl Cozier, Bellingham, Wash.
West Virginia Vet. Med. Assn.		Parkerburg, W. Va.	E. Layne, Huntington, W. Va.
Western Michigan Vet. Med. Assn.		Allegan, Mich.	[illegible] S. McGuire, Grand Rapids, Mich.
Western N. Y. Vet. Med. Assn.	4th week, June, 1917.	Buffalo, N. Y.	F. F. Fehr, 36 Prospect Ave., Buffalo.
Wisconsin Vet. Med. Assn.	Jan. 18, 19, 20, 1918.	Madison, Wis.	W. A. Wolcott, Madison, Wis.
York Co. Vet. Med. Society	1st Tues. after 1st. Mon. of each month.	York, Pa.	E. S. Raustiicker, 325 Newberry, York, Pa

Dr. C. C. Mix, of Battle Creek, Mich., has accepted the chair of surgery at the Grand Rapids Veterinary College, Grand Rapids, Mich. Dr. Keller Clark, of Cooperstown, N. Y., will succeed Dr. Mix in his pratcice at Battle Creek.

Dr. Lytle, State Veterinarian of Oregon, appointed Dr. E. R. Derflinger, of Junction City, Ore., assistant state veterinarian, September 7th. Dr. Derflinger succeeds Dr. E B. Osborne, of Athena, Ore., who has joined the army reserve corps.

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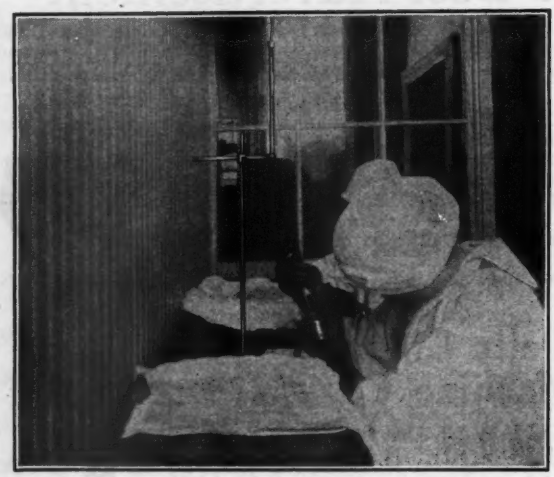

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33. Transient Crural Paralysis.
34. Lymphangitis.
35. Epizootic Lymphangitis.
36. Foot Scab.
37. Foot Rot in Colts.
38. Umbilical Hernia.
39. Paralysis of the Tail.
40. Agalactia in Mares.
41. Strangles.
42. Influenza.
43. Infectious Cerebro-Spinal Meningitis.
44. Erysipelas.
45. Septicemia.
46. Malignant Edema.
47. Purpura Hemorrhagica.
48. Acute Infectious Dysentery.
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The article on the cost of tuberculosis to the live stock industry and the reasons for, and methods of its control and ultimate elimination, is a valuable addition to this work. No one is better qualified than Editor Russell to discuss the cattle producers' part in this work. Mr. Russell has made a deep study of the tuberculosis problem; he is in close touch with the live stock industry, a recognized authority on live stock matters, and an acknowledged champion of live stock interests.

The discussion of the intradermal tuberculin test by Dr. Luckey is a most welcome addition to the all too meager information available on this subject. Dr. Luckey is a pioneer user of the intradermal test and an enthusiastic advocate of it. His experience with this test extends over a period of more than six years and comprises more than 100,000 tests of which he has kept a record. No more illuminating treatise concerning any tuberculin test has ever been written.

Dr. Dyson's experience with the state accredited herd plan of handling tuberculosis in cattle, like Dr. Luckey's experience with the intradermal test, extends over a period of six years. It has received less opposition and more support from the breeders of pure-bred cattle than any other plan for tuberculosis control yet offered. Dr. Dyson is the originator of this plan and a strong advocate of it. His article gives the plan in detail with its advantages in the control of tuberculosis; a draft is given of the agreement under which it was put into operation in Illinois. A model statute for its adoption as a state policy is likewise included in the discussion.

Taken all together this volume represents the best and most practical information that is to be had on the great problem of tuberculosis as it affects our health as a nation, analyzing the subject as it directly affects the producer of meat and dairy products, the veterinarian, and the live stock industry as a whole.

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The chapter on the organization of a department for live stock sanitary work will prove of incalculable value to all interested in this work.

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A New Effective Protection Against Blackleg

There is no disease of animals known in which prevention with biologics has been more widely applied than in blackleg. The good results which followed the introduction of protective inoculation are now being recognized throughout the United States and it may be safely stated that in blackleg districts a considerable proportion of animals are now being vaccinated annually. The available statistical data proves the remarkable reduction of losses from this disease, as a result of systematic vaccination.

The vaccine prepared in pellet or powder form is the outcome of early investigations on blackleg immunization by Arloing, Corvin, and Thomas, to whom the honor belongs of developing the method of immunization known as the "Lyon Method." The principle of this immunization consists in the attenuation of dried juices from blackleg lesions of an animal which has succumbed to the disease.

Kitt, in 1898, published the results of his experiments whereby he succeeded in simplifying the "Lyon Method"; his process requiring only a single injection, and he further recommended that it be made in the shoulder region where the skin is loose and easily pierced by the needle.

It must be accepted, however, that blackleg vaccine prepared in the usual pellet or powder form from attenuated blackleg meat is a comparatively crude product. Blackleg vaccine as marketed at the present time cannot be accurately standardized and a single dose may contain 100,000 or 1,000,000 spores and at other times a much smaller number. Such a variation would naturally result in irregularities of the immunizing action of the vaccine and it is no doubt due to this fact that direct losses from vaccination and deaths from the natural infection after vaccination cannot be entirely avoided. Nevertheless, blackleg vaccination as now practised has given splendid results, though complaints against the reliability of the method are now infrequent, both from veterinarian and stockman.

Realizing the shortcomings of the vaccine, investigators have been at work to develop a more uniform product which would avoid losses from vaccination and at the same time confer to the animals an effective protection against blackleg.

Attention was first directed toward developing a vaccine consisting of the attenuated cultures of the blackleg organism. Leclainche and Vallee developed a **liquid blackleg serum** which they tested out very extensively, and it is now being employed in different countries with fairly good results.

The shortcomings of the liquid blackleg vaccine must be recognized since it is subject to the same deficiencies as is the Pasteur vaccine for anthrax; viz., a careful standardization of the product is almost impossible; the keeping qualities of such a vaccine are limited; and furthermore, it is a recognized fact that the blackleg organism does not retain a uniform virulence upon artificial cultivation. These factors, no doubt, are responsible for the fact that the liquid blackleg vaccine is not attaining popularity for vaccination against blackleg.

With the advent of the development of the different immune sera for the prevention and treatment of diseases the utilization of animals for the production of **blackleg immune serum** has also been undertaken.

It is natural that the use of the serum for the control of blackleg has its limitations. The injection of an animal with serum induces a passive immunity which protects the animal for a period of less than one month.

BLACKLEG FILTRATE—LEDERLE

More recently in this country **germ-free extracts** (aggressins) have been highly recommended for immunization against blackleg, and the results from vaccination with this product are highly satisfactory and no doubt more reliable and uniform than with the blackleg pellets or with the powder. However, the cost of production of such extracts is considerable and therefore the stock owner, especially since he is accustomed to expend only a nominal sum for the products used heretofore for vaccination against blackleg, would not readily take advantage of this product.

Researches With Blackleg Filtrate—Lederle

Japanese investigators have recognized the value of immunization against blackleg with blackleg filtrate and developed the procedure to such a state of perfection that it is now almost uniformly employed in Japan.

Realizing the advantages which would follow the development of a potent blackleg filtrate, investigations were undertaken in our laboratories along the line of the Japanese method, especially since it appeared evident that a blackleg filtrate could be developed which, in its immunizing action would possess the same effectiveness as that obtained from the germ-free extract, juices of meat taken from animals affected by blackleg.

It would be impossible to describe in this short article, in detail, the method of procedure which we followed in the development of Blackleg Filtrate-Lederle, especially since a detailed description of the experimental work has been published in articles on Blackleg Filtrate-Lederle in the June issues of both the Journal of the American Veterinary Medical Association and The American Journal of Veterinary Medicine.

The tests undertaken with the filtrate proved that calves vaccinated with the product and subsequently injected with highly virulent material failed to develop the disease, whereas the control animals which were not given the filtrate, but were injected with the same amount of virulent material as the immunized animals, died of blackleg.

The dose of the filtrate as first prepared was 5cc. Since, however, it appeared advantageous to reduce this to a quantity which could be more conveniently handled, studies were made toward refining and concentrating the product. This has been successfully accomplished and in its present form a dose of 1 cc. possesses the desired immunizing properties; and besides, it is preserved in such a manner that its keeping qualities are assured for an almost indefinite period of time.

One of the great advantages of Blackleg Filtrate-Lederle is that it does not contain the blackleg germ in any form **and therefore cannot induce the disease under any circumstances.** At the same time, it possesses all of the immunity producing properties of the vaccine and Blackleg Extracts (Aggressins). **Consequently, the Blackleg Filtrate-Lederle represents a safe and effective product for vaccination against blackleg.**

Standardization

Blackleg Filtrate is accurately standardized both on cattle and guinea-pigs. Furthermore, since it represents a laboratory product the uniformity of its potency can be accurately controlled.

The Duration of Immunity

With reference to the duration of immunity produced by Blackleg Filtrate-Lederle, investigations have proved that this lasts for at least one year; that is, the same length of time as the immunity produced by the use of vaccine or germ-free extracts.

BLACKLEG FILTRATE—LEDERLE

There is no conclusive information available whereby a permanent immunity may be produced by the use of any blackleg product.

Since claims are made that certain products produce a permanent immunity, and in view of the fact that all the available scientific information on this subject indicates that up to date no product has been developed which would confer to the animals a permanent immunity, we appealed to the United States Bureau of Animal Industry for their views on this particular matter. In a letter dated June 26, 1917, the attitude of the Bureau of Animal Industry with regard to the duration of Immunity from different blackleg products, was expressed as follows:

> "Referring to your letter of the 7th instant, concerning the duration of the period of immunity conferred by the use of blackleg germ-free extract (Aggressins) as compared with the immunity following the use of blackleg filtrate, you are advised that we are not in a position to say that the immunity conferred by the use of either of these products is permanent. It is probable that this immunity may last a comparatively long period, but we agree with your statement that there has not been sufficient time as yet to say with accuracy that a permanent immunity is conferred, and had advised certain manufacturers of blackleg Aggressin accordingly, prior to receipt of your letter."

Method of Administration and Dosage

Blackleg Filtrate-Lederle is administered subcutaneously and preferably in the neck, midway between the head and shoulder, using an ordinary hypodermic syringe which has previously been sterilized. At the point of injection the skin should be thoroughly cleansed with a suitable antiseptic solution.

Blackleg Filtrate-Lederle—is marketed in a concentrated form of which 1 cc. doses will afford sufficient immunity to the cattle to protect against the natural infection for a period of about a year—that is, for the same length of time as the immunity established by vaccine or by germ-free extract.

Animals To Be Vaccinated

Calves as a rule should not be vaccinated until they are six months old. Animals over two years old are seldom affected, and the mortality among them is so small as to make vaccination unprofitable. Calves between six months and two years of age should be subjected to the vaccination.

Time To Vaccinate

The time for vaccinating depends largely upon circumstances. In the different parts of the country there is a distinct blackleg season, and the proper time for vaccination is just before the arrival of this season. The disease, however, is mostly prevalent during the spring and fall months.

BLACKLEG FILTRATE—LEDERLE

Packages

Fig. No. 1

Fig. No. 2

Fig. No. 3

BLACKLEG FILTRATE-Lederle is supplied in the special Lederle vial designed in our Laboratories with the object of giving the maximum of protection to the product as well as rendering its use convenient for the veterinarian. A brief description will demonstrate the advantages of this vial:

Figure No. 1 shows a cross section of the stopper employed in this package. It will be noted that a diaphragm of rubber, easily pierced by a hypodermic needle, completes the seal.

Figure No. 2 shows the vial with the stopper in place, the vial having been filled and stoppered under aseptic conditions in the laboratory. The stopper is securely sealed to the vial and is not to be removed.

Figure No. 3 shows the vial in the hands of the operator and demonstrates the manner in which the filtrate is removed from the vial. After moistening the top of the rubber stopper with an antiseptic solution, the operator partly withdraws the piston of his syringe, then inserts the needle through the diaphragm in the stopper. He then forces the air in the syringe into the vial and upturning the vial as in Figure 3, the filtrate will flow into his syringe. When the required amount has been removed from the vial, the needle is withdrawn and the opening made by the needle will close, effectively sealing the vial. This operation may be repeated as often as desired.

BLACKLEG FILTRATE-Lederle is supplied in three different size packages as follows:

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FOR SALE—I have joined the army and would like to sell my house, office and barn; no other veterinarians in the town; good farming country; population 900. Address Box 602, Coleman, Mich.

FOR SALE—One of the best veterinary practices in the state of Wisconsin; hospital holding 30 head of cattle; stanchions; cement floors; large office; instruments, medicine, etc.; best location in the state; a stock country; good reason for selling; act quick for this will go fast and at a low price if necessary. Address Dr. J. A. Roberts, Oconomowoc, Wis.

FOR SALE—Veterinary practice in South Dakota; hospital equipped, etc.; fine farming country; one of best towns; stock raising community; plenty of work year round; practice runs $4,000 to $5,000; line of drugs; everything for $800. Address Dr. M. W. Tedrow, Elk Point, S. D.

FOR SALE—Illinois veterinary practice; equipment, fixtures, instruments, etc.; invoice about $500; population 500; fine location; living expenses low; make money and enjoy life; practice can be made to go $4,000 to $5,000; competition not bad; examine fully; fine encouragement for you from people; auto optional. Address 1334, care of F. V. Kniest, R. P., Veterinary Broker, Bee Bldg., Omaha, Neb.

FOR SALE—$3,000 Wisconsin practice, hospital and equipment; large territory, good roads, good prices, wealthy farmers. Address No. 312, care of VETERINARY MEDICINE.

FOR SALE—Practice in Central Ohio; excellent location, well established, no competition; or will let responsible, competent man take charge for six months with privilege of buying. Address No. 313, care of VETERINARY MEDICINE.

WANTED—Graduate veterinarian to take charge of my practice on percentage basis, or will sell; write for particulars. Address No. 314, care of VETERINARY MEDICINE.

FOR SALE—Veterinary practice; have one best practice in state; very fine hospital (modern); fine office with all equipment; not much cash required; fine city; very large equipment, instruments, drugs, etc. Address, wire or call on Dr. J. A. Roberts, Oconomowoc, Wis.

FOR SALE—Practice in Champaign County, Illinois; runs from $3,000 to $5,000 per annum—of course, it depends on the fellow; drugs, instruments and harness, also 1918 Ford for sale; am going to war. Address Dr. D. E. Sisk, Mahomet, Ill.

ANY VETERINARIAN knowing of a No. 1 location for a reduction plant to reduce dead stock to grease, tankage, etc., write me as I have a good proposition to offer. Address No. 315, care of VETERINARY MEDICINE.

FOR SALE—Veterinary practice in good dairy country; no competition; profits of one month will pay for it. Dr. G. P. McNay, El Centro, Cal.

FOR SALE—On account of death, will sell one of the best equipped veterinary hospitals and practice in Southeastern Kansas; bargain if sold at once. Address Mrs. Ollie Appleberry, Parsons, Kan.

WANTED—A young man with a modern veterinary training and with distinctive ability as a salesman, to fill the position of traveling representative for a progressive, growing mid-west pharmaceutical factory. Must be a good mixer and be able to command the attention and respect of members of the veterinary profession. A recent graduate of an accredited veterinary school will be favorably considered. To a man who can qualify, and who will join our family with a view to permanency, all traveling expenses and a liberal salary will be paid, and every opportunity given for advancement. Give full particulars about yourself in your first letter. Address No. 316, care of VETERINARY MEDICINE.

WANTED—At once a veterinarian to take Dr. J. Smith's practice at Eldora, Iowa . He had to leave it on account of poor health. Equipment and drugs for sale cheap. Address K. M. Hardin, Eldora, Iowa.

FOR SALE—Practice in richest Iowa town of 25,000, doing $7000 annually. Price $2000; half cash, balance terms. Would consider reliable partner. Address No. 317, care of VETERINARY MEDICINE.

WANTED—Graduate veterinarian to resume my practice permanently, as I must go west. Good territory; Northwest Iowa. Nothing to sell. Address No. 318, care of VETERINARY MEDICINE.

FOR SALE—Paying country practice with office fixtures and drugs. Price $150 cash. Reasons for selling, going in army service. Address No. 319, care of VETERINARY MEDICINE.

FOR SALE—Wishing to retire from practice, I offer location in good dairy country, 28 miles west of Chicago. Good stock of drugs and instruments. Auto if desired. Come or write quick. Address Dr. A. M. Sherwood, Naperville, Ill.

FOR SALE—My practice, hospital, table, office fixtures—all or part, also drugs. Cheap if taken at once. County seat; two railroads. Address Lock Box 165, Granite Falls, Minn.

WANTED—Experienced veterinarian in New York City. State age, salary expected and other qualifications. Address Drs. H. & A. M. Stark, 321 E. Third St., New York City.

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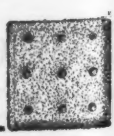

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Dr. A. T. Peters, Chief Veterinarian of Illinois, has issued the following regulations, which became effective August 20th:

"No swine shall be removed from Public Stock Yards to points within the State of Illinois, except for immediate slaughter, unless said swine have been subjected to immunization by the administration of serum, or serum and virus, and disinfected with a two per cent (2%) solution of Cresol Compound, U. S. P., and held in noninfected pens for six hours before being loaded in clean and disinfected cars ,and covered by a permit prescribed by the Department of Agriculture of the State of Illinois, for consignment of swine in quarantine; *provided,* that all swine originating in Public Stock Yards located in other States shall be shipped into the State of Illinois in accordance with the provisions of the Regulations of the United States Bureau of Animal Industry governing the removal of hogs from Public Stock Yards, and, further, that when such swine have been subjected to the serum and virus treatment, a permit for their shipment shall not be required, and said swine shall not be subject to quarantine upon arrival within the State of Illinois.

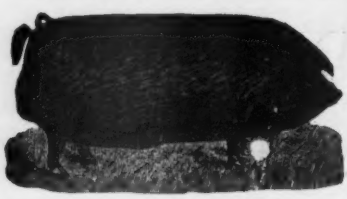
"Transportation companies, before accepting such shipments, shall require permits to be executed in duplicate form by the owner or his agent; the original of said permit shall be attached to the way bill and the agent of the transportation company accepting such shipments shall immediately forward duplicate of said permit to the Chief Veterinarian, Springfield, Illinois.

"All swine covered by such permits shall be placed in quarantine upon the premises of the owner by the Chief Veterinarian for a period of thirty days after arrival, during which time the owner, or person having charge of such swine, shall render weekly reports as to the health of the swine so shipped on blanks prescribed for that purpose. The Chief Veterinarian shall release said swine from quarantine at the expiration of thirty days; *provided,* said swine appear to be in a healthy condition."

The Chicago Veterinary College was visited by three burglars who attempted to open the safe, but without success, August 28th. Dr. H. E. Heron, who was on duty there, was relieved of $16.65.

Members of the Southwestern Michigan Veterinary Association held a picnic at Indian Lake, Mich., August 31st. An enjoyable social program was presented. Short talks were made by Dr. Hayes, of the Bureau of Animal Industry, Kalamazoo; Mr. W. R. Harper, secretary of the livestock sanitary commission; and County Agent Lurkins.

U. S. Veterinary License No. 32



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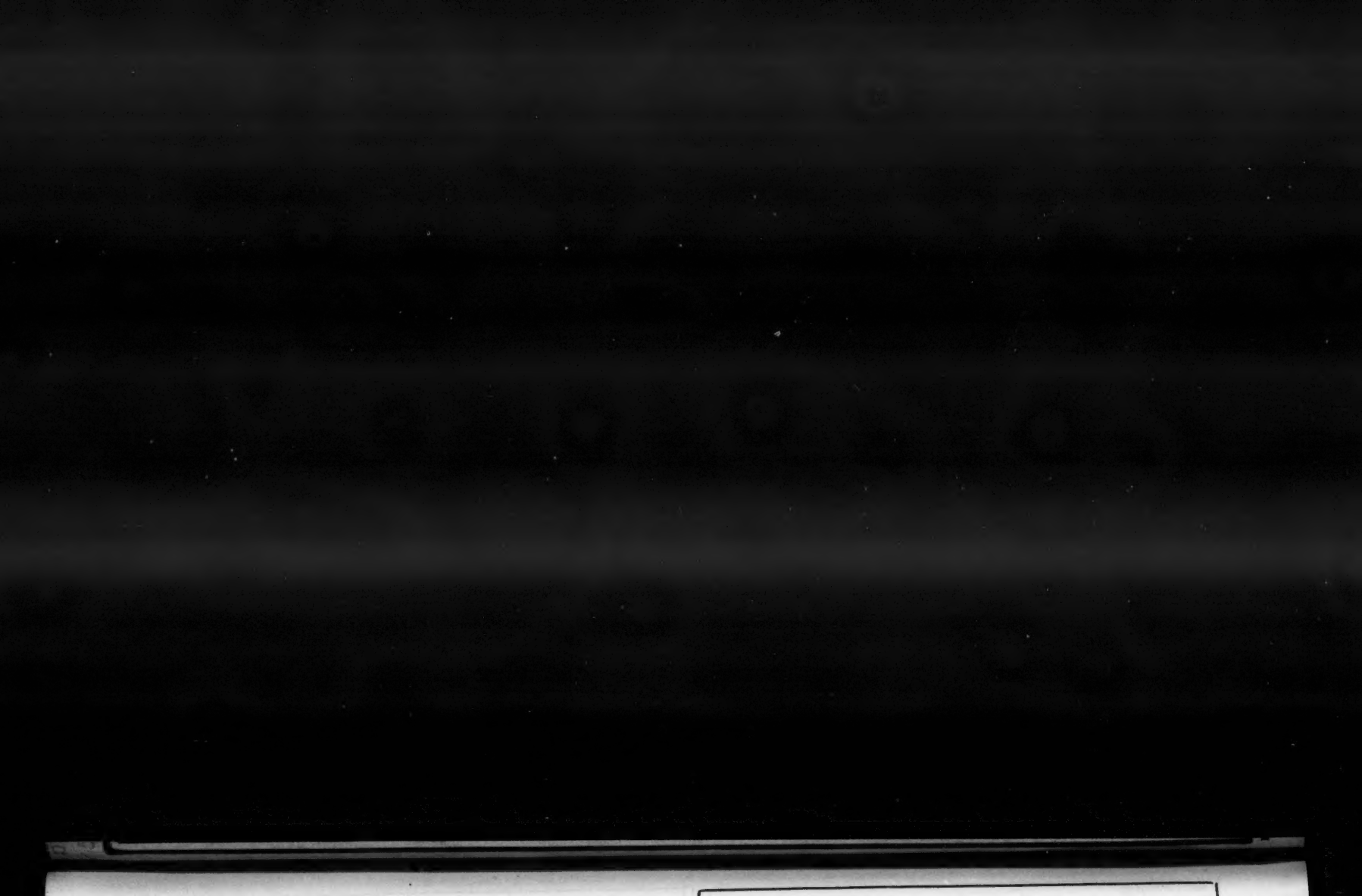
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